THE INDUSTRY'S RECOGNIZED AUTHORITY

ROCK PRODUCTS

LARGEST PRODUCER CIRCULATION IN THE HISTORY OF THE FIELD

Television Saves Money In Minerals Industry page 78
Are You Fumbling Management Relations? page 82
Convert Excess Gravel to Needed Fines page 86
Turnpike Stone Plant Becomes Permanent page 92

Three screening sections, Lynchburg, Va., plant, Rockydale Stone Service Corp.

DECEMBER 1956

DENVER CAN SUPPLY COMPLETE EQUIPMENT FOR YOUR MILL

One Responsibility

Crushers, Screens, Feeders, Ball-Rod Mills, Classifiers, Jigs, Pumps, Samplers, Agitators, Conditioners, Flotation, Thickeners, Filters, Dryers, Ore Testing and Mill Design Services.

DENVER AUTOMATIC SAMPLERS

. . . for Positive Mill Control

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Denver Equipment Co. can supply you with a variety of samplers to meet the many different problems involving size of material (either wet or dry); amount of sample; and frequency of sample cuts.

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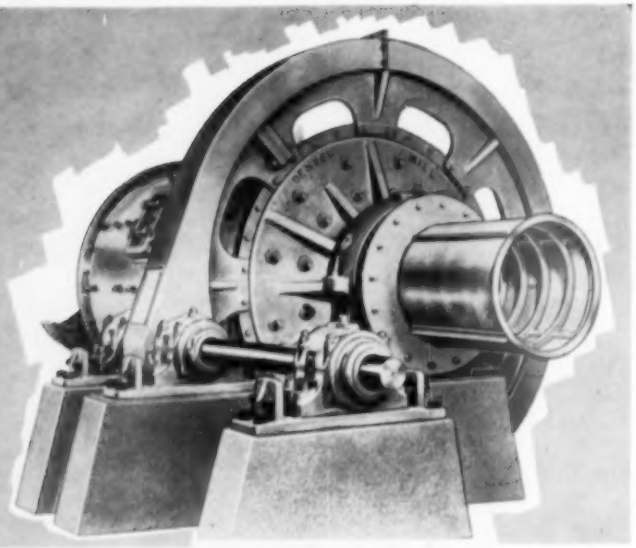

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The size of a DENVER Ball or Rod Mill is determined by the *working diameter* inside the liners, rather than diameter of the shell, as many other mills are measured. Therefore, DENVER *Mills have up to 32% more capacity*—with resulting savings in initial cost, since you can buy a shorter mill for the same volume of feed. Sizes from 30″x18″ to 7′x16′.

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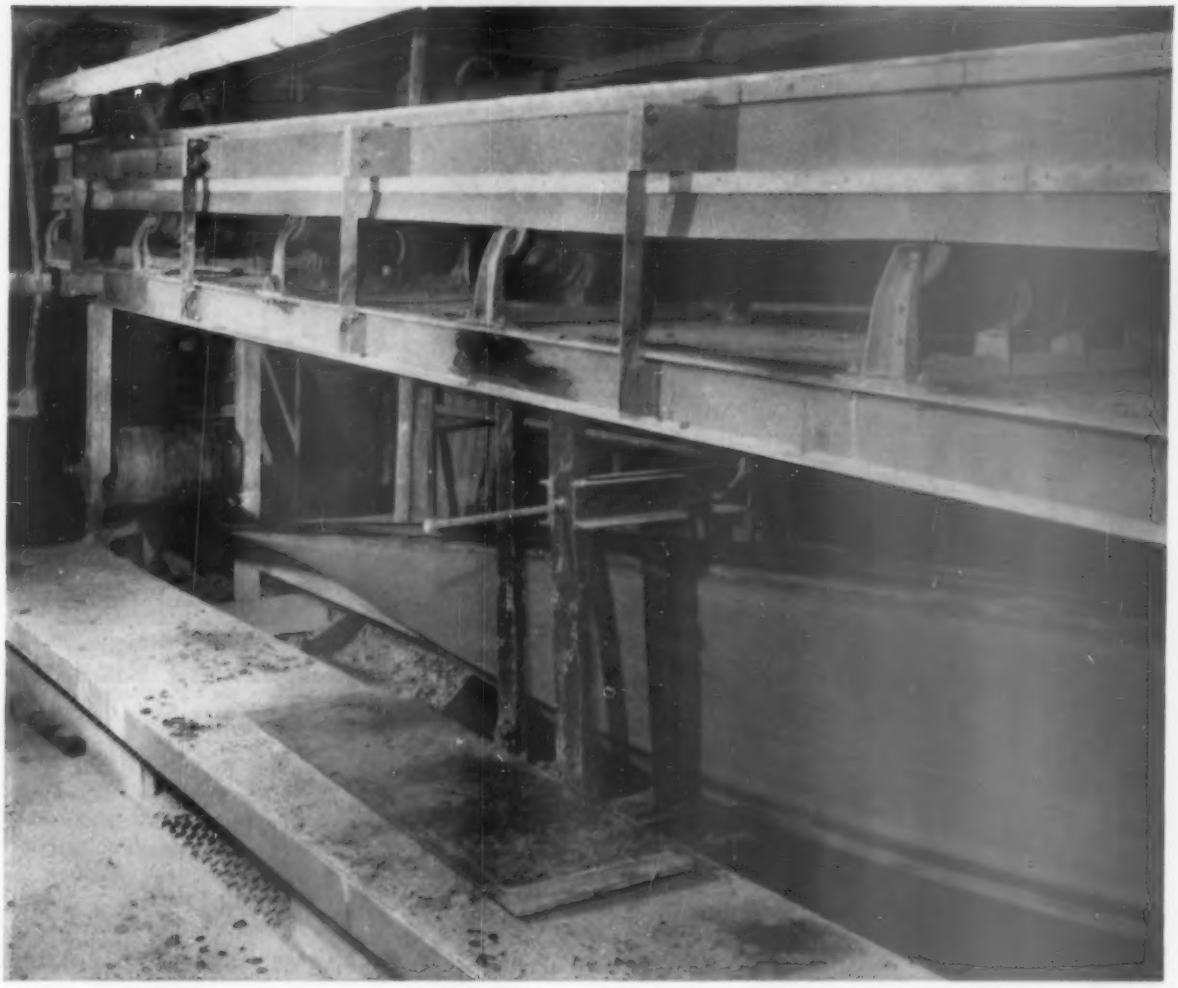
B.F.Goodrich



How to handle sticky materials without damage to conveyor

THAT belt carries a hot, sticky, abrasive chemical that's made into fertilizer. Handling the stuff with a regular conveyor used to be a terrific problem. Sticky particles would cling to the belt, build up into gummy layers, clog the return idlers, damaging the belt cover.

Then a B. F. Goodrich distributor recommended something quite different in conveyors—the B. F. Goodrich "turnover" belt system. Here's how it works. As the material is dumped off the end of the moving belt, the belt makes a 180° turn, (as shown in the picture), runs empty along the return idlers, then makes another one-half turn before receiving the next load.

Only the clean side of the belt touches the idlers, so there's no chance for sticky materials to build up on them. Danger of belt damage is reduced because lumps of materials cannot be trapped between the belt and pulleys. At the chemical company shown in the picture, engineers predict they'll get three times more service from the belt on the "turnover" system.

If you have an operation where sticky, corrosive materials must be moved from place to place, the B. F. Goodrich "turnover" conveyor system may be the answer. Let a B. F. Goodrich distributor give you full details and show you how easy it is to convert a conventional conveyor into the turnover type. *B. F. Goodrich Industrial Products Company, Dept. M-820, Akron 18, Ohio.*

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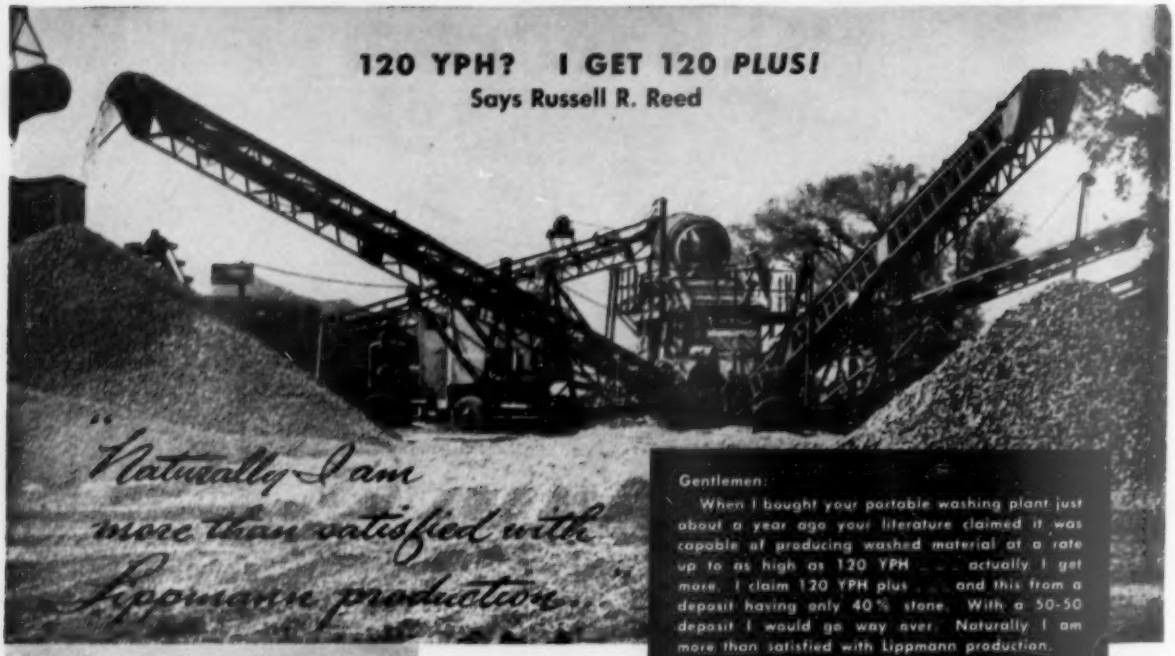

Gentlemen:

When I bought your portable washing plant just about a year ago your literature claimed it was capable of producing washed material at a rate up to as high as 120 YPH . . . actually I get more. I claim 120 YPH plus . . . and this from a deposit having only 40% stone. With a 50-50 deposit I would go way over. Naturally I am more than satisfied with Lippmann production.

(Signed) Russell R. Reed

Lippmann Super-Capacity plant — a champion with a champion's look.

Above and below are views of other Lippmann portable washing plant layouts in operation in Northern Illinois and Southern Wisconsin.

LIPPMANN Portable Washing Plants Will Do More For You

Like Mr. Reed, you will find that Lippmann Portable Washing Plants give you more capacity and real drive-it-to-the-job profits. There's a choice of two models to meet your needs — the WASH-MORE with capacity up to 80 yards per hour and the SUPER-CAPACITY — the only washer with enough capacity (120 cu. yd. per hour) to keep up with a double drum paver.

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Why not look into the possibilities of one of these plants for your operations — like Mr. Reed, learn how Lippmann engineering pays off with higher capacity, cleaner product, accurate sizing, greater sand recovery and reduced maintenance. Lippmann Engineering Works, Inc., 4605 W. Mitchell Street., Milwaukee 14, Wis.

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FIVE END-DUMP TRUCKS

IN SHOVEL-TO-CRUSHER HAULING, where the same truck chassis is specified for either end-dump trucks or EASTON side-dump trailers, the following ratio has been established:

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Want the biggest return for your haulage dollar? Want the facts on replacement costs? Write or telephone now for technical information.

R-1074

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THIS IS THE WAY TO
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ROCK

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PROCESS PRODUCTS

DECEMBER 1956

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Here Are Three Articles You'll Want to Read

A Look Into the Future

Television has made its first step into the rock products industries in a cement plant quarry. This article points to many applications in the industry

Solve Tough Quarry Problem

Good drilling and blasting methods and adequate drainage facilities have overcome difficulties. Flexible plant set-up produces wide range of specification sizes

Fast, Accurate Batching

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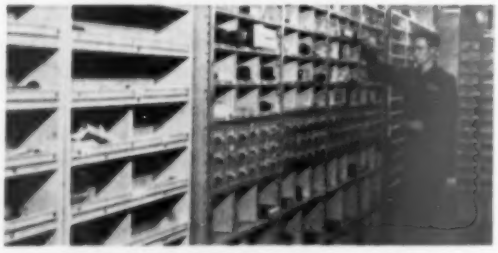

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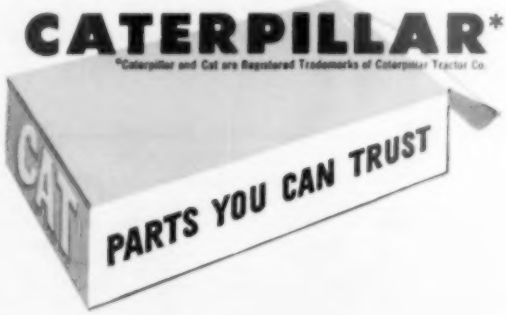

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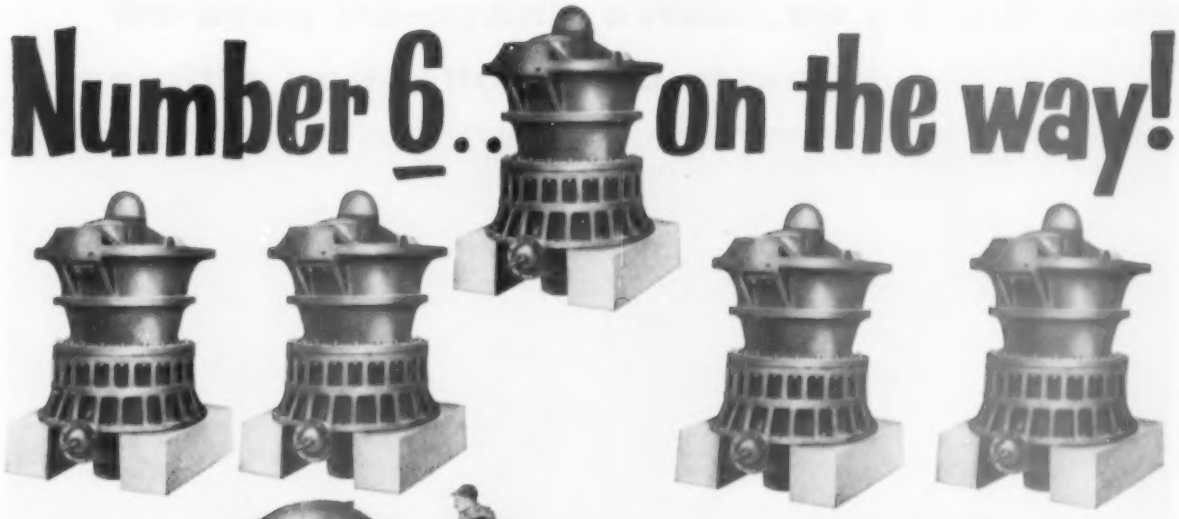
Number 6.. on the way!



Another Traylor TC Gyratory is added to the 5 on order for Big Taconite Project

Profitable production of iron ore from low-grade Taconite calls for the most modern, efficient methods and equipment. That's why Traylor Gyratories were the choice for both primary *and* secondary reduction at one of the extremely hard Taconite-bearing ore properties.

The initial order included a Gyratory Crusher with 60″ receiving opening and 102″ diameter crushing head, this huge TC Primary Crusher takes chunks of ore the size of a flat-top desk and reduces them to 12″ at the rate of 4,000 long tons an hour. Four Traylor 36″ Gyratories were included on the original order . . . to take the 12″ ore and reduce it to minus 5″ in the secondary crushing operation. Now . . . we've received an order for another 36″ Gyratory to join the five now being built.

For complete specifications and description of the outstanding features of Traylor TC Gyratory Crushers, send for your copy of Traylor Bulletin #126.

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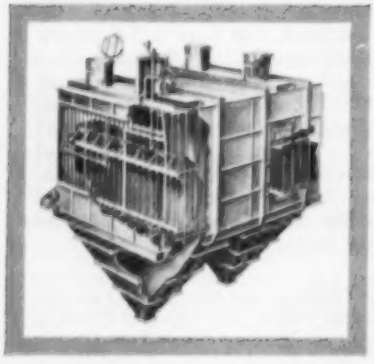
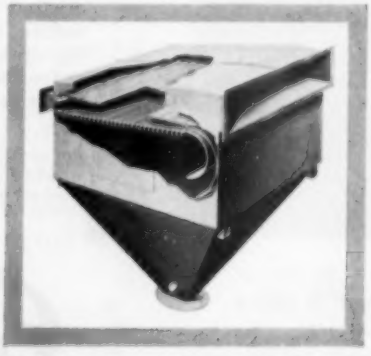
How Buell's exclusive Shave-off pays off in extra dust collection efficiency



Buell SF Electric Precipitator also delivers extra dust collection efficiency, due to unique Spiralectrodes and Continuous Cycle Rapping.

Proper proportioning, side entry of dust-laden gases, add even more extra efficiency and long, maintenance-free life to Buell Cyclones. Large diameter design eliminates bridging and clogging, keeps efficiency high under varying loads.



Buell Low Resistance Fly Ash Collector combines top efficiency with low draft loss, for either natural or mechanical draft installations.

For more specific data about Buell's *extra efficiency*, write Dept. 17-L, Buell Engineering Company, 70 Pine Street, New York 5, N. Y.

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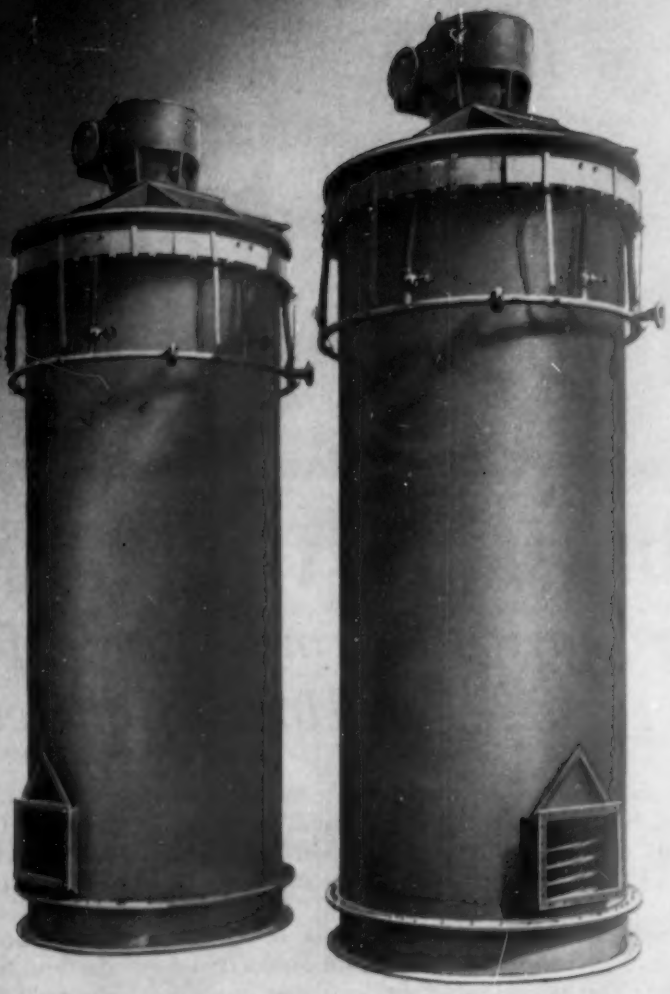
SMIDTH

cement coolers



The Smidth Cement Cooler, developed especially for cooling hot cement to temperatures acceptable for bulk shipment or immediate bagging, is externally water-cooled. The hot cement is introduced at the base and conveyed in a thin layer along the cooled interior surface to the top, where it is discharged. High cooling efficiency is assured by the intimate contact of cement and the water-cooled surface.

The Smidth Cooler may also be used with many other similar dry pulverized materials.

Illustrated here are two 6' 6" dia. x 17' 7" high Smidth Coolers ready for shipment.

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What's Happening

IN OTHER FIELDS OF INTEREST TO THE ROCK PRODUCTS INDUSTRY

December, 1956

Barytes ore for concrete aggregate, containing more than 90 percent barium sulphate was used in the construction of a reactor pool in the nuclear research center of Battelle Memorial Institute, Columbus, Ohio. About 200 cu. yd. of high density concrete were used, each cubic yard containing 486 lb. of cement and one percent by weight of a plasticizer. A compressive strength of 3000-p.s.i. was obtained at the end of 14 days. The core of the 1,000,000-watt research reactor is suspended 22 ft. below the surface of the pool, the water serving as a coolant and a shield from the radiations. The reactor will be used in research on the chemistry of petroleum, and in improvement and development of numerous chemical, glass, plastic, ceramic, and metallic products and processes, as well as in other applications.

Reporting on progress of the St. Lawrence Seaway, Administrator Lewis G. Castle of the St. Lawrence Seaway Development Corp. said that American work on the project was 15 percent completed as of September 1. The Dwight D. Eisenhower and Grasse River Locks were 15 percent and 6 percent complete, respectively. Excavating and diking on the mainland portion of the Long Sault canal was 19 percent complete. At the upper end of the Long Sault canal, operations have been completed, removing the tip of Croil Island in order to reduce the velocities and undesirable cross current. Drilling and dredging of rock shoals in the Thousand Islands section began in August.

A drop in applications for its mortgage insurance program on proposed home-building has been reported by the Federal Housing Administration—from 23,149 units in September, 1955 to 13,371 in September, 1956. The F.H.A. mortgage insurance report said applications on new construction totalled 166,686 through the first nine months of this year, compared with 257,333 in the same period of 1955. On existing construction, F.H.A. received applications to insure 17,468 units in September, 1956, compared with 24,684 units in September, 1955. Totals for the first nine months of 1956 and 1955, respectively, were 205,088 and 255,300.

Construction contract awards, in the 37 states east of the Rockies, totaled $19,441,066,000 for the first nine months of 1956, according to an **F. W. Dodge** report. This showed an increase of seven percent above the corresponding 1955 period. Non-residential building contracts for the nine-month period amounted to $6,977,670,000, up nine percent over September, 1955; residential contracts totaled $8,094,637,000, up two percent; and heavy engineering awards totaled $4,368,759,000, up 15 percent.

A contracting firm in Pittsburgh was perplexed when the mortar mix being used to install ceramic tiling in a bakery refused to harden sufficiently to hold the tile in place. Eventually the cause was discovered—sugar from the bakery had found its way into the mortar.

An all-clay block utilizing materials found in Saudi Arabia has been developed by Armour Research Foundation of Illinois Institute of Technology for Arabian American Oil Co. Since Arabian shales have a marked tendency to bloat, lightweight structural units (8- x 8- x 16-in.) of expanded aggregate were indicated. Armour researchers mixed the expanded aggregate, crushed to ⅜-in. maximum, with 10 to 20 percent of raw bonding clay and enough water to attain a degree of harsh plasticity. The units were molded in a vibrating block machine, and fired, usually in tunnel kilns. Some units were processed in less than 6 hr. The block is said to be strong (1000-p.s.i. compressive strength), lightweight (18-25 lb. per unit) and insulative (0.3 B.t.u. or less per sq. ft. of wall area). The color, which is permanent, ranges from dark red to buff.

Envisioning a change from the present type of railroad track structure to one which carries the rail on continuous concrete beams imbedded in wide lanes of concrete, John W. Barriger, president of Pittsburgh & Lake Erie Railroad, outlined the idea at a meeting of the Railway Systems and Procedures Association. "The long-held belief that railway track must combine resilience with rigidity may be wrong," suggested Mr. Barriger. He admitted that the new method may be expensive, but it would provide spectacular reductions in maintenance, as well as improvement in riding quality. Railroads now are spending more than $1.5 billion annually on maintenance, said the speaker.

A pilot plant will be built by the Anaconda Co. to test a process of producing alumina from clay available in this country. To be completed in about a year at a cost exceeding $1 million, the plant will have a capacity of 50 t.p.d. If successful, it will be followed by a full-scale commercial plant with adequate capacity to furnish all of Anaconda's requirements for alumina on an economically competitive basis. Alumina until now has been extracted from bauxite, much of which is imported. In anticipation of the success of the pilot plant, the company has obtained options on clay deposits in the Moscow, Idaho, area.

Cementing of concrete masonry, brick, cinder block, tile, and other building material with a bond stronger than the joined material itself is said to be possible with the use of a new plastic alloy called Permagile. It is claimed to be permanently waterproof, non-shrinking, non-expanding, unaffected by aging or atmospheric conditions, and unharmed by alkalis or most acids or chemicals. Repairing of cracks, setting of tile, and waterproofing are among its suggested uses.

Vibrations of modern traffic have sped the wear and tear on the antiquities of Rome more than weather, war and years, according to Rome's department of arts and monuments. To enable the fourth-century Arch of Constantine to withstand another thousand years of wear, metal braces were bolted into holes bored into loosened blocks of granite. To preserve appearances, the holes were then plugged with granite.

Heavy construction awards, nationally, totaled $18 billion for the first 43 weeks of 1956, as reported in **Engineering News-Record.** This was an increase of 17 percent above the corresponding period in 1955.

THE EDITORS

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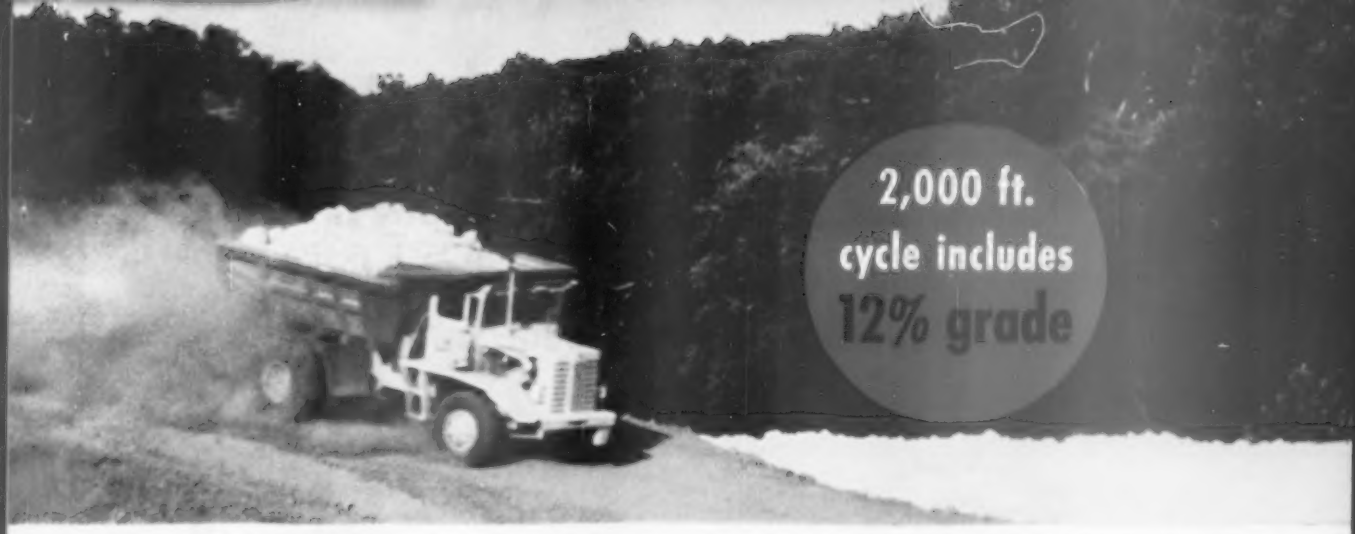

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High speed (up to 38 mph), 16 cu. yd. capacity, and next-to-automatic operating control of two new International "95" Payhaulers are getting Clarkson Construction Co. record-breaking rock production of 2400 cu. yd. per 10-hour day. Payhaulers are producing this outstanding yardage on the company's 1000-foot cut through dolomite limestone—part of their 7.5 mile, 2-lane highway contract between Bonne Terre and Halifax, Mo.

The Payhaulers are operating on a 2000-foot cycle which includes a 12% grade. On this grade, too tricky and treacherous for Clarkson's other rock haulers, Payhaulers maneuver speedily and safely downgrade—under positive Torqmatic braking control! Payhaulers' high speed of up to 38 mph also permits the fast average round-trip travel time of only 2 min., 45 sec. That's faster than the 3 cu. yd. shovel can load one!

H. D. Brown, project superintendent, says, "The Payhaulers have got all other rock trucks beat. Control we've had with Payhaulers on this job is something we didn't have on any other truck. We've averaged 150 to 162 loads of 16 to 18 cu. yd. per 10-hour day. It's the best production I've ever had!"

Other veteran rock men who have used or seen the International "95" Payhauler in action say the same thing. You'll join them, too! Ask your nearby International Construction Equipment Distributor to give you a demonstration.

"Best Production I've ever had,"

Says H. D. BROWN
Project Superintendent,
Clarkson Construction Co.,
Kansas City, Mo.

BODY UP...DOWN...IN ONLY 12 SECONDS! 3-stage hydraulic hoist gives full-time control. Snubbing assures smooth dumping, gentles body return.

TWO-TON CHUNKS OF LIMESTONE bang into the Payhauler. High-tensile steel sides, triple-section bottom, super-duty "spring cushions," plus strongest frame in "95's" class take rock-shock!

A COMPLETE POWER PACKAGE INCLUDING: Crawler, Wheel, and Pipe-Boom Tractors... Self-Propelled Scrapers and Bottom-Dumps... Crawler and Rubber-Tired Loaders... Off-Highway Trucks... Diesel and Carbureted Engines... Motor Trucks

INTERNATIONAL® CONSTRUCTION EQUIPMENT

International Harvester Company
180 North Michigan Avenue, Chicago 1, Illinois

In the Construction Industry...

SYMONS® CONE CRUSHERS

meet the demand for vast tonnages of fine aggregate and sand of proper gradation and quality

FOR DAMS AND HYDRO PROJECTS . . .

like the hundred million dollar Hungry Horse project at Kalispell, Montana, where the General-Shea-Morrison contracting group built one of the largest and highest dams in the country.

(Bureau of Reclamation Photo)

FOR MODERN EXPRESSWAYS . . .

like the modern Detroit Expressway, with its many interchanges designed for easy, safe access to this high speed highway . . . a good example of the big job being done by the construction industry to help meet the country's highway needs.

(Abrams Aerial Survey Corp. Photo)

FOR BRIDGE CONSTRUCTION . . .

like the famous George Westinghouse Bridge in East Pittsburgh, Pa. The 460-ft. center span of this bridge is the longest reinforced concrete arch in the United States—and stands as a tribute to the skill and ingenuity of the designers and builders.

(Portland Cement Assn. Photo)

FOR COMMERCIAL AND RESIDENTIAL BUILDINGS . . .

like the Park La Brea housing project in Los Angeles. Costing $40,000,000 and providing living quarters for 13,000 people, this unit is the largest architectural concrete project in the country.

(Portland Cement Assn. Photo)

• Illustrated here are just four examples of the vast contributions to the progress of mankind being made by the construction industry. With the advent of modern engineering and huge construction projects such as these, specification concrete aggregate has assumed an increasingly important role. To meet the constantly growing demand for vast tonnages of quality aggregate, Symons Cone Crushers have long been the first choice of leading producers throughout the world. In addition, Symons Cones are widely used for preparing sand to meet the rigid specifications prevalent in concrete construction.

For in aggregate and sand production . . . *as in all of the great ore and industrial mineral operations the world over* . . . there has been no record to equal the performance of Symons Cone Crushers that have so consistently and efficiently produced great quantities of finely crushed product at low cost.

Long accepted by experienced contractors and producers for efficient stationary crushed aggregate plants, increasing numbers of successful operators of portable and semiportable crushing plants are now using these sturdy, economical Symons Cones for big capacity of fine product.

Whether you are a contractor, operator, construction engineer, designer or manufacturer, it will pay you to specify and use Symons Cone Crushers . . . as well as the other Nordberg Machinery for the construction industry . . . *all* designed and built to deliver maximum output at lowest possible cost.

Write for literature on the machinery you need.

NORDBERG MFG. CO., Milwaukee, Wisconsin

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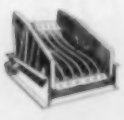
SYMONS PRIMARY GYRATORY CRUSHERS



SYMONS VIBRATING GRIZZLIES and SCREENS

GRINDING MILLS

SYMONS V-SCREENS

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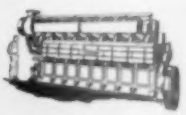
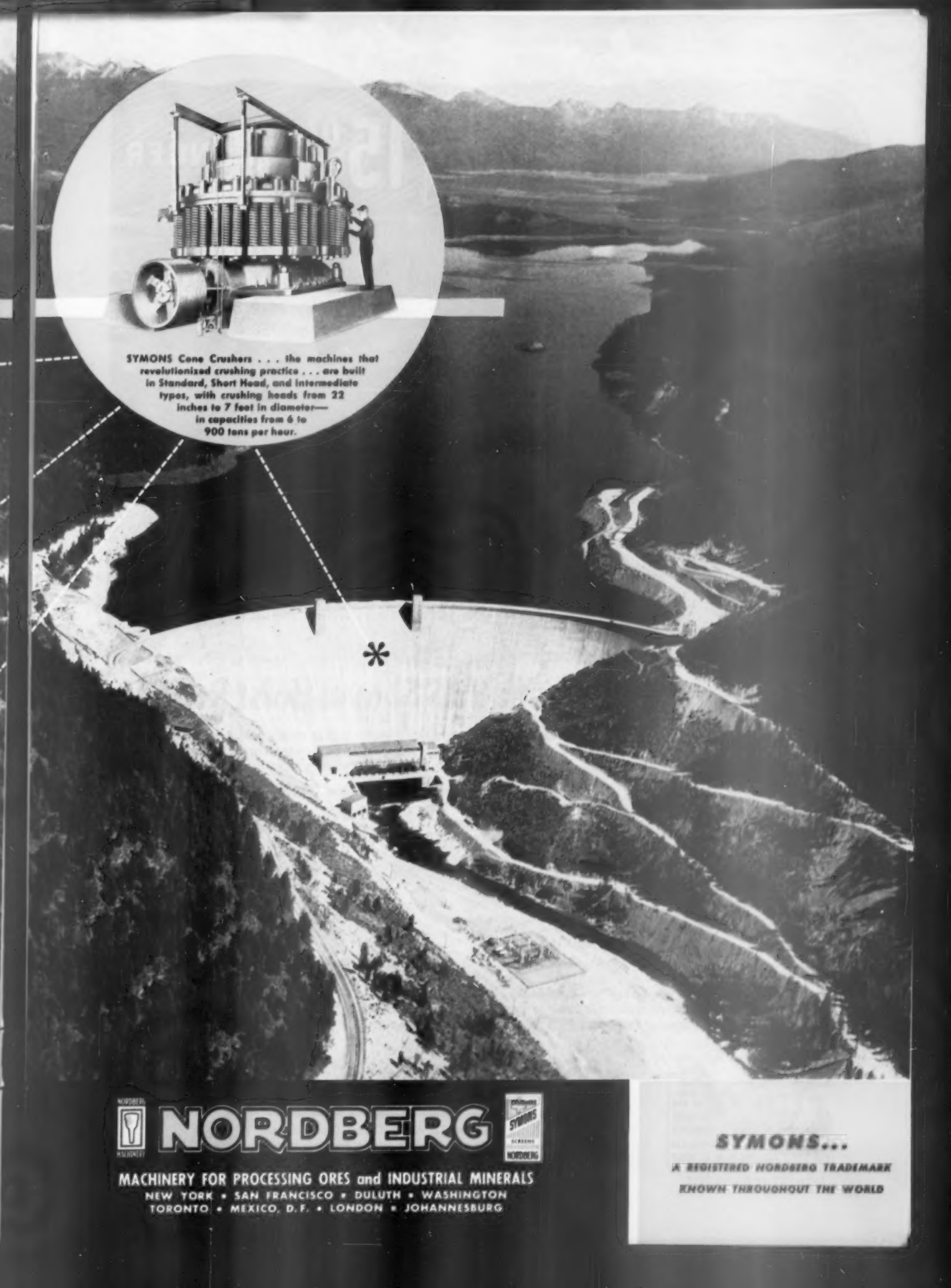


DIESEL ENGINES — 10 to over 12,000 H.P.


SYMONS Cone Crushers . . . the machines that revolutionized crushing practice . . . are built in Standard, Short Head, and Intermediate types, with crushing heads from 22 inches to 7 feet in diameter—in capacities from 6 to 900 tons per hour.
NORDBERG
MACHINERY FOR PROCESSING ORES and INDUSTRIAL MINERALS
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A REGISTERED NORDBERG TRADEMARK
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an ACCO product

American Cable TRU-LAY VHS | 15% STRONGER

33% Longer Wear with VHS Shovel Hoist Ropes

Lester Van Alystyane, Superintendent of The Callanan Road Improvement Company, Kingston, New York says: "Quarrying operations are rough on shovel hoist ropes. The best Improved Plow Steel shovel hoist ropes we could buy for our 120-B Bucyrus-Erie shovel used to last for about 250 thousand tons of rock. When we switched to new TRU-LAY VHS the life of our ropes jumped over one-third—now we get 325 to 350 thousand tons per rope.

"The new VHS seems to take the shocks better than any other rope we have used. And it saves us money on 'down time' and loss of production."

New VHS is setting new records like this in hundreds of applications—as shovel hoist ropes, scraper and dozer cables and draglines. Made from a new grade of steel for wire rope, it is at least 15% stronger than IPS—the strongest grade formerly available.

Handle Heavier Loads—With Higher Safety Factor

This extra strength means you can safely handle heavier loads with the same diameter line. And you get a higher factor of safety during the entire period of operation.

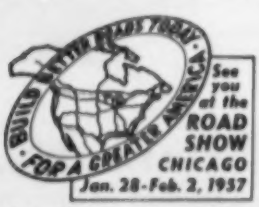
Tougher

And, in addition to its greater strength, new TRU-LAY VHS is tougher. It was developed especially for the toughest applications—draglines, shovel hoist ropes, scraper and dozer cables. It thrives under the abuse wire rope necessarily gets in these punishing services.

Cuts "Down Time"—Lowers Cost

Because it is stronger and tougher, new VHS lasts longer in these tough applications. This saves money. And you make additional savings by reducing the amount of "down time" necessary for wire rope replacement.

Your American Cable distributor has draglines, shovel hoist ropes and scraper and dozer cables of new TRU-LAY VHS in stock now. You don't need any complicated specifications to order them. Just call him today and tell him the size and diameter you want.



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EDITOR'S PAGE

Do It Now!

OUR ROCK PRODUCTS and concrete products industries have their backs against the wall on the public relations question.

One analysis is that much of the criticism received has been caused by industry apathy toward public relations as a phase of business operation. To be fair about it, that's partly true.

The industries we serve are digging deep into the problem through their national associations. Much good work on that level has been done, but full effort on a local level is needed to get the proper results.

Surely, responsible companies—many of them—have top-flight PR programs in operation. They've paid off, too. But most of the trouble comes from a few operators who can't be bothered with "new-fangled" ideas to appease a few "crack-pot" neighbors. They get the criticism, and all they do about it is to grumble at their misfortune. They don't realize that, in the public's eyes, they represent the whole industry.

There's another side of it, of course. Minerals and concrete products industries have grown fast. What's more, they'll get a lot bigger—and soon. They've grown up in residential and populated areas, in most cases because of necessity. And residential areas have sprung up around plants, too. Result—a need to take a close look at relative importance of personal, public and industry rights, and community economics.

Ten to one the **complaining** public next to or in the vicinity of a plant doesn't know much about the plant's business—its reason for being, importance to community economy, necessity to the area's expanding construction! If the people knew and understood, they'd not complain. More likely, they would consult—if there were a problem they couldn't fathom.

Education, then, is one of the big answers to the whole problem. And on that point, the responsibility rests with industry.

There's where a PR program comes in. It's a must. Don't wait for a complaint to be made, then try to explain it. A good PR program will head it off before it's born. Educate first—and do it now!

The home owner near your plant isn't going to consider your viewpoint if he doesn't know it. He can't! It's up to you to teach him—and the public. Show them that they and the community are better off because you're there.

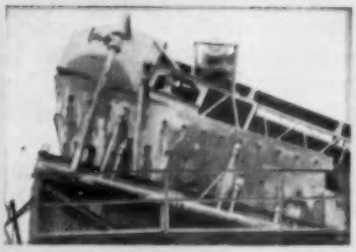
For example, be on familiar terms with your local newspaper, radio and T-V station; be active in local, civic and community affairs; know your public officials; impress courtesy and consideration on your drivers and all your employes.

These points, and others, will be explained in detail in a future issue of ROCK PRODUCTS. We'll present soon a blueprint of a public relations program for individual rock products operators, and we hope you'll be watching for it.

George C. Lindsay

PROFIT THROUGH ...WITH SIMPLICITY

A 4' x 12' and a 4' x 10' Triple Deck Model D Gyrating Screen, set in tandem, performs a final washing and sizing operation. The washed gravel is fed to five storage bins, so that any specification can be met by blending on the conveyor belt underneath these bins.



This Simplicity 5' x 14' Two Deck Model D Gyrating Screen takes its feed from the raw material stock pile via conveyor. All decks have washing sprays. The three products produced of sand and gravel are fed by conveyors to individual stock piles.

Aggregate is carried right from the pit to this Simplicity 3' x 8' Model BG Heavy Duty Scalping Screen. Fines are screened through to the conveyor below, while oversize is scalped to crusher.

ACCURATE SIZING GYRATING SCREENS

4,500 tons of aggregate a day is classified by four Simplicity screens at Holly Sand and Gravel, near Holly, Michigan

Working two shifts of 9 hours each, the Holly Sand and Gravel Company is daily processing 4,500 tons of aggregate, and the firm's General Manager expects to exceed this total in the near future. All this material is sized on four Simplicity screens. Simplicity Model D Gyrating Screens and a Model BG Scalping Screen efficiently and accurately classify the aggregate into grades 10A, 6A, Pea Rock, Torpedo Sand, and Mason Sand. This fast and accurate sizing is typical of the performance of Simplicity Screens throughout the aggregate industry. In addition, a 3' x 6' Model C Single Deck Screen has recently been installed to produce 100% clean Pea Pebbles, by eliminating the buckshot. The Simplicity Gyrating Screen is the original type of mechanically vibrated screen using the counterbalanced eccentric shaft. The counterbalance is machined directly on the shaft, thus giving positive action with perfect smoothness.

Simplicity Gyrating Scalpers are heavy-duty machines built on the same basic principles as the Gyrating Screens, but with a grizzly deck to scalp off the oversize rock. These units are designed to withstand terrific impact. They perform two jobs at once by feeding the oversize into a crusher, and screening the fines.

Wherever you need fast, efficient scalping, screening, or feeding in your aggregate operation, Simplicity equipment can be a big help to you . . . write us today for complete information.

Simplicity
TRADE MARK REGISTERED

ENGINEERING COMPANY • DURAND 13, MICHIGAN

SALES REPRESENTATIVES IN ALL PARTS OF THE U.S.A.
FOR CANADA: Simplicity Materials Handling Limited, Guelph, Ontario
FOR EXPORT: Brown and Sites, 50 Church St., New York 7, N. Y.

182

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How would you decide?

A ROUNDUP of day-to day in-plant problems and how they were handled by management men is given in cases cited below. Each incident is taken from a true-life grievance which went to abitration. Names of some principals involved have been changed for obvious reasons. Readers who want the source of any of these cases may write to ROCK PRODUCTS.

Can you discharge an employe who does not want a promotion?

What Happened:

MAX LOOPER wasn't a ball of fire, but for four years he did a fair job. One day Looper was promoted to a job of final inspector—and he was unhappy about it. "This is a pressure job," he told his foreman, "and I'm afraid I can't handle it." The foreman gave no heed to Looper's anxiety. It soon became evident that Looper's fears were well-founded. In a year he made four costly errors, and he was fired. He protested:

1. I told my foreman I couldn't handle more responsibility.

2. If I didn't make good, I should have been transferred to a job which is "emotionally suitable" for me.

The company came back with these arguments:

1. We are not in the psychiatry business. If a man can't handle responsibility, that's not our fault.

2. We can't retain people who want to stay in a rut. If we did, our business would stagnate.

Was the company: RIGHT ☐
WRONG ☐

What Arbitrator Langston T. Hawley Ruled: "It is the arbitrator's conviction that the pressure under which Looper was working as a final inspector is that to which any employe is subject when he is doing a job he did not want in the first place and for which he is not particularly suited by experience or temperament. Looper's unrefuted testimony reveals that he had certain anxieties about his work as an inspector which help to explain the deficiencies in his performance.

"In view of the foregoing circumstances, it is the arbitrator's opinion that the company, instead of discharging the grievant, should have made a greater effort to transfer him before permitting his work errors as an inspector to become so numerous. Certainly the mutual interests of the parties would have been better served by transferring Looper to more suitable work. Accordingly, it is the arbitrator's judgment that Looper should be reinstated by the company."

Can you fire an employe for defending himself in a fist fight on company property?

What Happened:

Sam Edon worked in the shipping department. When a company truck backed into the loading platform, Edon yelled: "Hey, you mug, you can't park there."

The driver, Jim Forrest, took this as an insult and jumped out, fists flying. Edon, who was no powder puff, took up the challenge. The fight lasted for over 15 min., with both men slugging it out. They threw not only fists, but hammers, boxes and chains. It was a real battle—Hollywood style. Edon won, but his reward was a discharge notice. Forrest got one, too. Edon strongly protested: "I didn't start the fight — I simply defended myself."

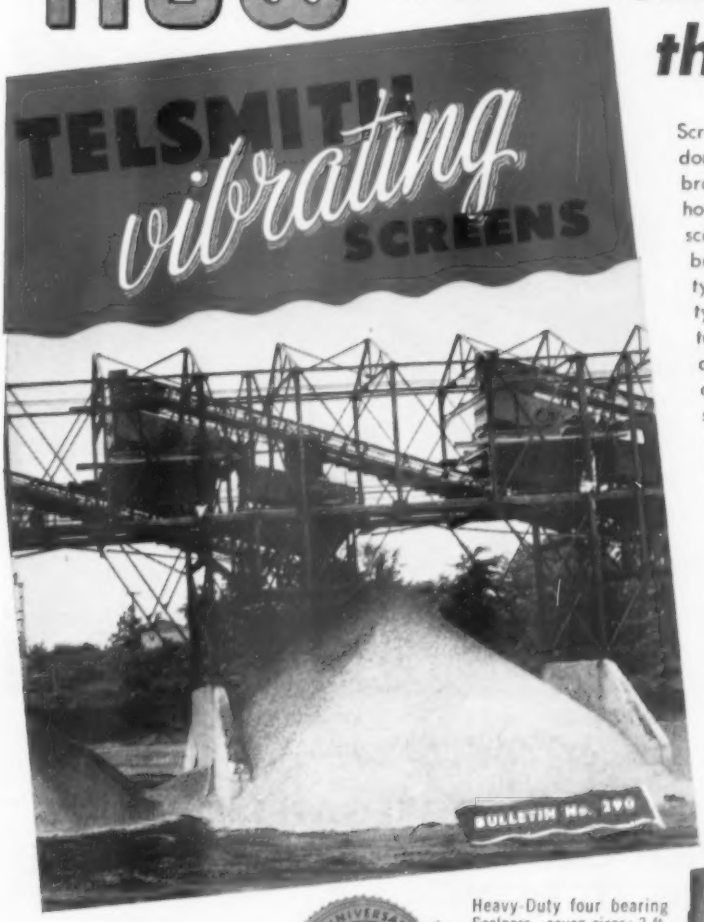
The company agreed that this was so, but maintained that it was Edon's duty to fend off Forrest's blows and not to indulge in a lengthy battle, using company equipment as ammunition.

Was the company: RIGHT ☐
WRONG ☐

What Arbitrator Marion Beatty Ruled: "If I were satisfied that Edon was an unwilling participant trying to disengage himself, and returned just enough blows to protect himself I would probably hold for him. I am inclined to agree with his position that it should not be necessary for him to 'take a

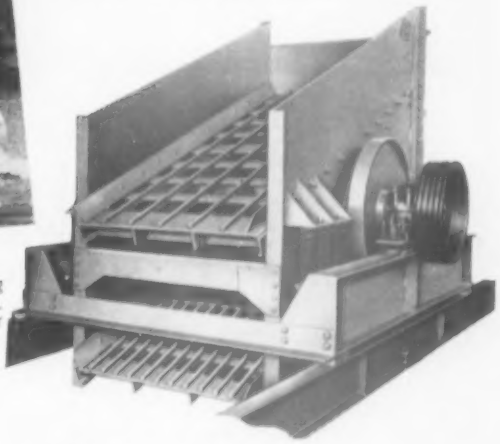
(Continued on page 23)

HOW TO PICK SCREENS *that pay profits*



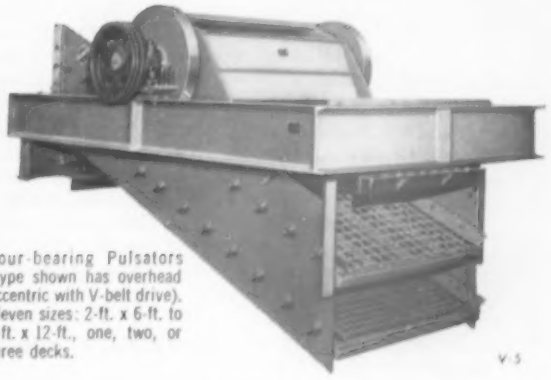
Screening aggregates is a tough job—but it can be done efficiently and at low cost—with Telsmith Vibrating Screens. This new Telsmith bulletin tells you how. It explains which type of screen is best for scalping . . . sizing . . . washing—and why Telsmith builds two types of four bearing screens and one type of two bearing screen. It describes each type; shows several new Telsmith Vibro-King features, including—new counterweight mechanism and new spring suspension, making it the smoothest and most efficient screen you can buy, either for scalping or finishing. Shows new heavy-duty tray construction; best methods for mounting screen cloth. Full of helpful pictures, diagrams and specifications.

Get this NEW BOOK FREE—Ask for No. 290



Heavy-Duty four bearing Scalpers—seven sizes: 3-ft. x 6-ft. to 5-ft. x 14-ft., one or two decks.

Two-bearing Vibro-King Screens—eleven sizes: 3-ft. x 6-ft. to 5-ft. x 16-ft., one, two, or three decks.



Four-bearing Pulsators (type shown has overhead eccentric with V-belt drive). Eleven sizes: 2-ft. x 6-ft. to 5-ft. x 12-ft., one, two, or three decks.

V-5

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"You name the specifications—

ANY GRADATION OF SAND OR AGGREGATES—WE'LL PRODUCE IT WITH OUR EAGLE WASHING-CLASSIFYING SECTION!"

ACME SAND & STONE, ORILLIA, ONTARIO

Acme Sand & Stone, a subsidiary of Uren Construction Ltd., Orillia, Ontario, is producing material to whatever specification they require for their own construction jobs, and for another subsidiary—Champlain Ready-Mixed Concrete Ltd., as well as for other aggregate users in the area.

The versatile EAGLE Complete Washing-Classifying-Dehydrating Section at their plant gives them practically any gradation or blend of material wanted—concrete sand, mason sand, plaster sand or various combinations of aggregates.

The Eagle Section consists of a 16′ Water Scalping-Classifying Tank, two 30″ dia. x 25′ fine material screw washer-classifier-dehydrators and a 36″ dia. x 18′ coarse material screw unit with trash remover. Each of the fine material screws can produce the same gradation of material or each a different gradation—utmost flexibility that adds up to profits. Eagle engineering and experience can help you—send for Catalog 55.

EXPERIENCE, PROGRESS, SERVICE, SINCE 1872

The EAGLE LINE

FINE MATERIAL WASHERS

COARSE MATERIAL WASHERS

LOG WASHERS

WATER SCALPING—CLASSIFYING TANKS

"SWINGEX" DREDGE LADDERS

COMPLETE DREDGES

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EAGLE IRON WORKS

137 HOLCOMB AVE., DES MOINES, IOWA

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dive' or 'run like a rabbit' in order to keep his job.

"There were other witnesses to the incident, and by their testimony I am convinced that both men were angry and both were willing participants in a fist fight on company premises for a minimum of 15 min. It was a real fight, not just horseplay or any pushing, powder-puff affair.

"I am satisfied that either party could have suspended hostilities in much shorter order or 'stepped outside' and off the premises in much less than the 15 min., and with fewer blows if either one had not been so angry.

"Every mature person must know that engaging in a violent fist fight on company property is detrimental to the business, can be injurious to property and persons, and that it cannot be condoned. I find that the company had sufficient and just cause for the discharge of Edon."

Has management a right to talk to an employe privately without a union official being present?

What Happened:

Hunt and Hampton, worker and foreman, weren't hitting it off. So, when Hampton assigned Hunt to new work, the latter put up an argument. "I've had enough of you," complained the foreman. "Come on upstairs to Hamilton's (the plant manager) office. I'm going to recommend that he fire you."

"I'm not going anywhere without my steward," Hunt replied, and he left the job, ostensibly to look for the union official. Whereupon Hampton fired Hunt on the spot.

The company backed up its foreman on this ground:

1. The employer has an unfettered right to talk with an employe privately at any time during working hours, provided it does not talk about union matters.

2. At the time the foreman asked the worker to go to the manager's office, there was not and could not have been any grievance or union matter pending since no disciplinary action had yet been actually taken.

3. The worker, by his actions, was grossly insubordinate.

Was the company: RIGHT ☐
WRONG ☐

What Arbitrator Thos. J. Reynolds Ruled: "The basic principle that an employer may talk to an employe privately is perfectly sound. In the circumstances, however, the principle seems to be irrelevant since a grievance was clearly existant as far as the employe was concerned.

Hunt has been informed that his foreman was going to recommend his discharge to higher authority. To argue that Hunt technically could have no grievance until a formal act of discharge occurred is to distort the commonsense purpose of the grievance procedure—order reinstatement."

Must management retain a slow worker because he has seniority?

What Happened:

After taking a three-month leave of absence for medical reasons, John Tappel, a senior employe, found that he could "bump" into a job on which he had no experience. His foreman advised him not to exercise his rights to that job but to take something else, a little more in keeping with his experience.

Tappel refused. After eight weeks on the new job, during which he received help and instruction from his supervisor, Tappel couldn't come up to standard production and was fired for being a "slow worker."

Tappel went to arbitration on the grounds that he should have been given a chance to an easier job. The company claimed that he had had such a chance, but turned it down, and when he accepted the harder job he had to make good or take the consequences.

Was the company: RIGHT ☐
WRONG ☐

What Arbitrator Edgar A. Jones Ruled: "Once having waived its right to object to the relative capacity of the bumping employe as against the junior employe displaced, the company must then allow a fair chance

for performance on the job, giving the employe aids and assistance usual in the circumstances for a reasonable period of time. More than this, the employe cannot require, less than this, the company cannot withhold.

"There being present no elements of individual or concerted discrimination by supervision hampering the employe's efforts to perform—indeed, there having been a distinct effort by supervision to help lower his time—the arbitrator must hold that, in these circumstances, the company did not act unreasonably when it finally terminated the employe upon his failure to achieve a proper standard of performance."

KOEHRING WORK CAPACITY *in action . . .*

At a Mid-West quarry, ¾-yard 305 loads out lannon stone. It's another in a new series of Koehring machines, and is similar in basic design to the modern new ½ and 1-yard excavators. Has full complement of standard attachments, on crawlers and rubber (see capacity chart below).

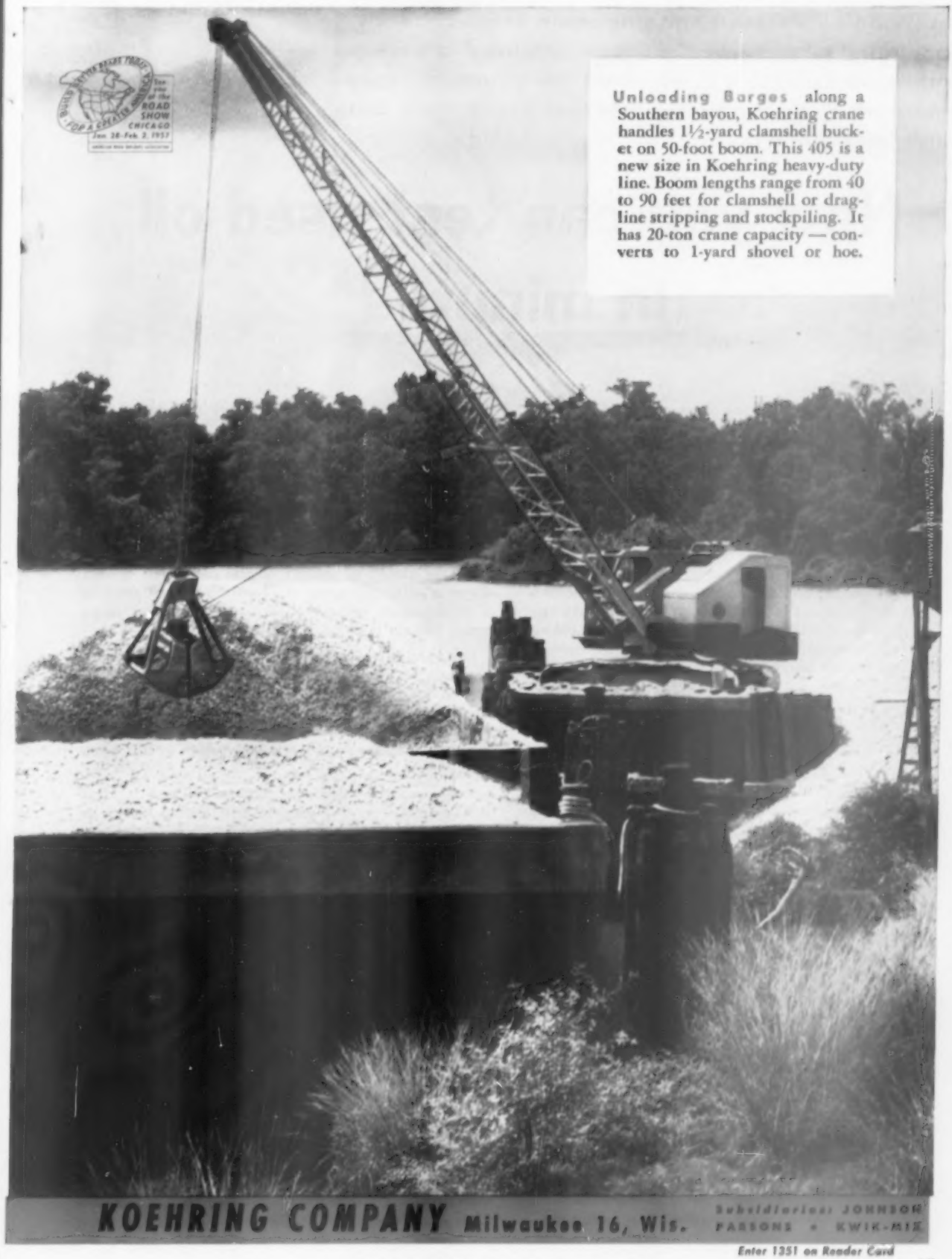
Plenty of pick-up — At an isolated camp in the Sierras, pumps and other machinery had to be unloaded and set in place. The heavy units required careful, precision-handling — and plenty of lift capacity. Above photo shows how they did it with a Koehring 15-ton 205 truck crane.

Here are some figures that will interest you:

KOEHRING MODEL	SIZE DIPPER	LIFT CAPACITIES (Crawler ratings based on 75% of tipping load. Rubber-tired machines — 85% of tipping load.)	
205 CRAWLER	½-Yd.	20,000 lbs.	at 10-foot radius
205 ON RUBBER	½-Yd.	30,000 lbs. 13,700 lbs.	at 12-foot radius at 20-foot radius
305 CRAWLER	¾-Yd.	30,000 lbs.	at 12-foot radius
305 ON RUBBER	¾-Yd.	50,000 lbs. 15,800 lbs.	at 10-foot radius at 30-foot radius
405 CRAWLER	1-Yd.	40,000 lbs.	at 12-foot radius
605 CRAWLER	1½-Yds.	72,300 lbs.	at 12-foot radius
1205 CRAWLER	3-Yds.	190,000 lbs.	at 13-foot radius

Want more information? Call Koehring distributor today.

Big producer — Deep stripping uncovered a heavy coal vein at this Eastern mine. Working on mine floor, a Koehring 605 shovel loaded out the coal, and dumped into trucks spotted on upper level. Depending on materials, and type of operation, the 605 can be used with standard 22-ft. shovel boom and 16½-ft. dipper-sticks — or with high-lift 28-ft. boom and 23-ft. dipper-sticks.


Unloading Barges along a Southern bayou, Koehring crane handles 1½-yard clamshell bucket on 50-foot boom. This 405 is a new size in Koehring heavy-duty line. Boom lengths range from 40 to 90 feet for clamshell or dragline stripping and stockpiling. It has 20-ton crane capacity — converts to 1-yard shovel or hoe.
KOEHRING COMPANY Milwaukee 16, Wis.
Subsidiaries: JOHNSON PARSONS • KWIK-MIX

Enter 1351 on Reader Card

In place of wasteful and uncertain crankcase-oil changing based upon mileage or hours in service, many operators of heavy-duty construction equipment now use a better guide that saves them both time and money.

Now you can test used oil in minutes

IT HAS COME as something of a surprise to some maintenance men to discover that they have been throwing away hundreds of gallons of still-good oil . . . year after year. Conversely, it is quite a jolt to realize that a costly engine-repair job could have been prevented by an on-the-spot analysis that would have shown up the condition . . . in minutes!

The recommendations for oil changes issued by engine makers have always been computed on "averages" for the various classes of vehicle service. And like the "average" man on the insurance chart, the average vehicle doesn't exist in the actual fleet. For example, two bulldozers of the same make and model, operating on the same job, can have quite different patterns of oil economy and engine condition. Obviously no one set of rules can apply ideally to all units. And fortunately there is no longer any need for such generalization.

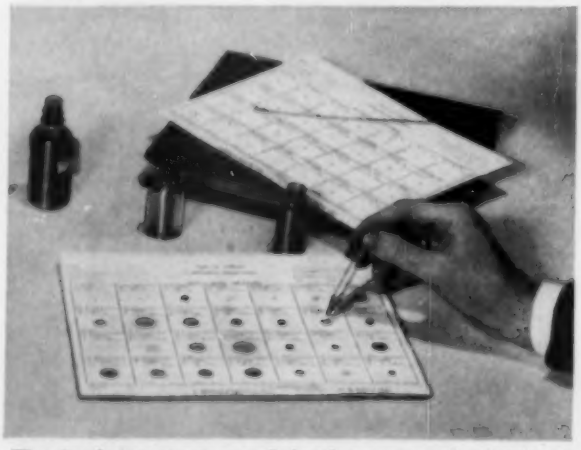
From a couple of drops of used oil, the Shell "ADC* Oilprint Analysis" provides a reliable check of oil condition, in minutes. It is very simple, and with a little practice, it tells you a lot about that oil and the engine that uses it.

What a drop of used oil shows: You place a drop of used oil on a piece of special filter paper supplied by Shell . . . let it stand a minute or two. You will then be able to *see* the following:

Water dilution: Even a tiny amount of water shows up . . . and that means not only that your oil is losing its ability to protect engine parts, but it also shows whether the water represents a normal amount of condensation or something more serious, such as an actual leakage of coolant from a faulty jacket.

Dispersancy/detergency: The same oil drop will give you a picture of how well the special additives in the oil are doing their job . . . whether or not the contaminants are being held in suspension where they do least harm . . . whether the cleansing and dispersing actions are adequate . . . whether the oil is still good.

Adulteration: The color of the oil spot will show whether too much contamination is occurring . . . and will very often point up the cause, indicating a check on



The simple test setup: sample bottles, a wire rod, a bottle of "indicator," and the permanent record card.

This single, on-the-spot sample reveals many things about an engine.

A fleet superintendent sees how easily the test is made.

injectors, nozzles, oil and air filters of diesels, or on plugs, carburetors and filters of gasoline engines.

All of the above can be learned from the single drop of oil . . . in an amazingly short time.

Alkalinity: Engine wear and engine deposits increase as the oil becomes acidic in nature due to contamination from combustion products. A special indicating fluid, developed in Shell Laboratories, tells at a glance whether oil is alkaline and still usable, or acid *and how much.*

Operators who keep an ADC Oilprint Analysis record of each vehicle generally find that the crankcase oil stands up longer than they had figured . . . a distinct saving in lubrication cost. At the same time, there is a running check on each engine that often detects impending trouble before its correction becomes costly. In this respect, the Shell ADC Oilprint Analysis qualifies definitely as one of the valuable recent tools of preventive maintenance.

If you are concerned with extending the service of crankcase oil, and with avoiding the risk of using oils loaded with contaminants, we suggest that you have one of the Shell service engineers demonstrate ADC Oilprint Analysis for you.

*Trademark

Photo shows an oil-spot test card...one phase in the visual life record of a charge of oil.

The Shell "indicator" shows acidity instantly. If spot turns red, oil is no longer fit to use, should be changed quickly.

SHELL OIL COMPANY

50 WEST 50TH STREET, NEW YORK 20, NEW YORK
100 BUSH STREET, SAN FRANCISCO 6, CALIFORNIA

SHELL

Enter 1201 on Reader Card

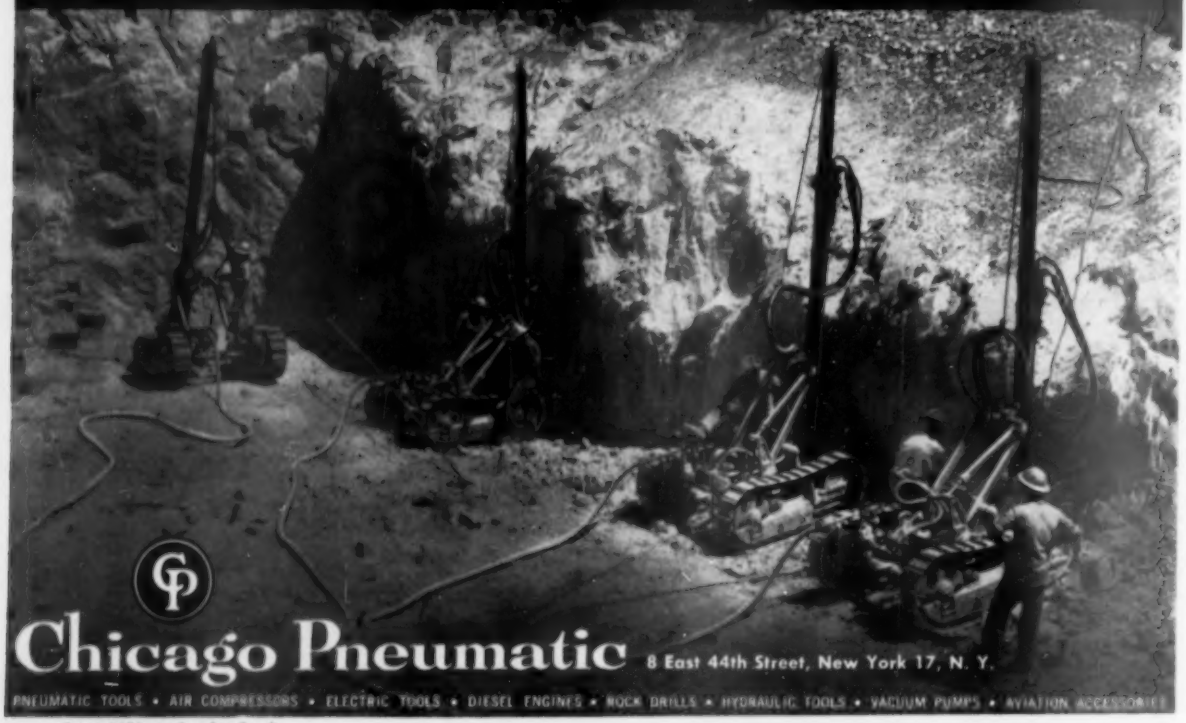
here

there

everywhere

the G-800 TRACDRIL!

The self-propelled CP Tracdril pivots . . . moves forward or backward and can turn in its own length! "Tracdril" has a hydraulically actuated U-arm for fast drill carriage positioning. Can tow a 13,000 pound compressor up a 10% grade. Its "knee action" crawler tracks take rough terrain in stride. You save time moving from hole-to-hole, get more accurate spotting and gain productive drilling time.



CP

Chicago Pneumatic 8 East 44th Street, New York 17, N. Y.

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES • ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

Enter 1231 on Reader Card

PEOPLE

IN THE NEWS

Dr. Robert H. Bogue

Dr. Bogue Visiting Foreign Cement Plants

DR. ROBERT H. BOGUE, who retired two years ago as director of the Portland Cement Association Fellowship at the National Bureau of Standards, Washington, D.C., left by air on October 30 to spend some time this winter and spring visiting the cement industries of South Africa, India and Japan. He planned to stop for conferences in London, and lecture before the German Portland Cement Association in Dusseldorf. Dr. Bogue also plans to spend a few days at the American School of Oriental Research in Jerusalem and visit the site of the recent discoveries of Biblical scrolls near the Dead Sea. He will stop in Cairo at the invitation of the Council for the Development of National Production, and in Khartoum where he has been invited to visit the Sudan Portland Cement Industry. Proceeding to East Africa, he will spend some time studying the cement and concrete developments in Uganda, Kenya and the Eastern Congo. After some weeks in the Union of South Africa, Dr. Bogue plans to fly to Bombay for similar study, and return via Bangkok, Hong Kong and Tokyo.

N.R.M.C.A. Engineer

RICHARD D. GAYNOR has been appointed associate engineer and laboratory supervisor of the National Ready Mixed Concrete Association's laboratory at the University of Maryland, College Park, Md., with Herman Knoppel as his principal assistant. Mr. Gaynor succeeds James F. Shook who has resigned to accept the position of materials laboratory chief for the new A.A.S.H.O. road test project near Ottawa, Ill. Mr. Gaynor joined the engineering staff as one of the graduate fellows at the University of Maryland. After receiving his M.S. degree in 1954, he served on a full-time basis. Mr. Knoppel served on the laboratory staff on a part-time basis for 11 years prior to becoming a full-time laboratory technician about two years ago.

Permanente Superintendent

A. E. RICH has been appointed general plant superintendent of the Cushenbury, Calif., plant of Permanente Cement Co., Oakland, Calif., according to an announcement by John G. Garoutte, vice-president in charge of operations. Born in Junction City, Ore., Mr. Rich attended San Jose State College, San Jose, Calif. He joined the Kaiser interests in 1932 as a gravel plant foreman on the Bonneville Dam project. In 1942 he transferred to the Salinas operations of Kaiser Aluminum and Chemical Corp., and in 1950 became assistant production superintendent for Permanente Cement Co.

Sales Representative

JACK VON METTENHEIM has been appointed Midwest sales representative for the potash division of International Minerals and Chemical Corp., Chicago, Ill. He has been associated with the firm since 1953. Mr. von Mettenheim received a degree in agricultural management from the Halle University, Halle, Germany, and served as district sales manager for the agricultural department of Farbwerke Hoechst before coming to the United States in 1948.

Highway Administrator

JOHN A. VOLPE, who recently resigned as Commissioner of Public Works of Massachusetts, to return to private business, has been appointed interim Federal Highway Administrator, a position created in the Federal Aid Highway Act of 1956. Bertram A. Tallamy, chairman of the New York Thruway Authority and former Superintendent of Public Works for New York State, has been selected for nomination by President Eisenhower to take over as permanent Federal Highway Administrator in January, subject to confirmation by the U.S. Senate.

Otto Frei Elected Institute President

OTTO C. FREI, president and general manager, Georgia Lightweight Aggregate Co, Atlanta, Ga., was elected president of the Expanded Shale, Clay and Slate Institute, Washington, D.C., at the fourth annual meeting held recently in San Francisco, Calif. William H. Thomas, plant manager, L. P. McNear Brick Co., San Rafael, Calif., was named first vice-president; Allan P. Taylor, vice-president, Kentucky Light Aggregates, Inc., Louisville, Ky., second vice-president; L. A.

(Continued on page 32)

New officers of the Expanded Shale, Clay and Slate Institute, left to right: Benjamin F. Park, treasurer; L. A. Thorssen, secretary; Otto C. Frei, president; William H. Thomas, 1st vice-president; and Allan P. Taylor, 2nd vice-president

INSPECTION WITHOUT REJECTION. Under this close scrutiny, USS Lorain Rolled Plate Lining passes every test—shows it is ready to take the toughest kind of punishment.

SEE The United States Steel Hour. It's a full-hour TV program presented every other week by United States Steel. Consult your local newspaper for time and station.

UNITED STATES STEEL CORPORATION, PITTSBURGH • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS LORAIN ROLLED PLATE LININGS *and* USS GRINDING BALLS

6-2286

USS

UNITED STATES

For its enlarged plant . . .

Lone Star Cement

again chooses

USS Lorain Rolled Plate Lining

Lone Star Cement Corporation is one of the world's largest Portland cement producers. Now, at Nazareth, Pennsylvania, enlarged facilities are rapidly nearing completion which will bring their plant up to an annual capacity of 3,600,000 bbls.

For this huge new addition, Lone Star chose USS Lorain Rolled Plate Linings for their new grinding units. This selection was based on past performance in Lone Star's other plants. It's a tribute to the wearing qualities and design of these extra-tough linings.

This extra toughness stems from the use of high-carbon rolled steel in the liner plates and alloy rolled steel in the lift bars. Each lining is custom made to fit the exact requirements of a particular mill.

The heat-treated lift bars have a marked hardness differential from the liner plates; this retains lift for the life of the lining. The result is constant grinding efficiency, maintenance of output and, above all, reduced grinding costs.

The lining design selected by Lone Star for their new Nazareth mills was the USS Lorain "staggered" type of lining, which will greatly reduce impact and vibration in any grinding mill.

Like Lone Star, specify USS Lorain Rolled Steel Plate Lining if you are interested in the above improvements. You'll "stay" with it, too. For expert engineering assistance on any grinding problem, just write to Specialty Products Sales, United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

SHOWN DURING CONSTRUCTION are seven of the eight new ball mills that will bring Lone Star's annual capacity at Nazareth, Pa. to 3,600,000 bbls.

S T E E L

Thorssen, Consolidated Concrete Industries, Ltd., Calgary, Alberta, Canada, secretary; and Benjamin F. Park, general sales manager, Buildex, Inc., Ottawa, Kan., treasurer. Frank G. Erskine is managing director of the Institute. Cedric Willson, vice-president and chief engineer, Texas Industries, Inc., Fort Worth, Texas, resigned as chairman of the Technical Committee, a post he has held for the past four years, and Carl Rollins, Basalt Rock Co., Napa, Calif., accepted the chairmanship of this committee.

Mo-Con Board of Directors

THE FOLLOWING new members have been elected to the board of directors of Mo-Con, Inc., Mexico, Mo.: James E. Burke, Kansas City, Mo., chairman; Frank P. Carswell, Kansas City; A. Clifford Jones, St. Louis; N. J. Cooksey, Moberly; and Roy Shepperle, Jefferson City. Members continuing on the board are Lon C. Ware, Mexico, president; Henry Goellner, Wentzville; James H. Ware, Fulton; and Lee Young, Washington, secretary-treasurer. The company has made plans to install 2-way radio in all of its ready-mixed concrete and concrete block plants, and has appointed Richard B. Smith, Springfield, Mo., to install a modern machine system of centralized accounting.

Heads Masonry Association

WILLIAM C. HOMER, Barnes & Cone, Inc., Syracuse, N.Y., has been elected president of the New York State Concrete Masonry Association, Buffalo, N.Y. Lawrence Dagostino, Dagostino Building Blocks, Schenectady, has been named vice-president; Salvatore Picone, Picone Bros. Building Supplies, Brooklyn, secretary; and Ralph J. Dalbey, Comac Builders Supply Corp., Rochester, treasurer. Directors are Alfred L. Cossitt, Cossitt Concrete Products, Inc., Hamilton; Frederick W. Reinhold, Anchor Concrete Products, Inc., Buffalo; John D. Daly, Auburn Cement Products Co., Inc., Auburn; Benjamin H. Palmer, Jr., Southern Tier Concrete Products Co., Alfred; Lee Taylor, Taylor Concrete Products, Inc., Watertown; and Henry C. Quaritius, Jr., Nailable Cinder Block Corp., Brooklyn.

A.I.M.E. President Honored

C. E. REISTLE, national president of the American Institute of Mining and Metallurgical Engineers, New York, N.Y., was honored at a dinner by the South.rn California section of A.I.M.E. at the Engineers' Club, Los Angeles, Calif. Ernest Kirkendall, national secretary of A.I.M.E., also was an honored guest. The dinner was planned to give western A.I.M.E. members an opportunity to meet the president and secretary of their group. Members of the Southern California Petroleum Section were also present at the dinner.

National Slag Officers

A. W. WOOD, general manager, Cleveland Slag Division, Standard Slag Co., Youngstown, Ohio, has been elected president of the National Slag Association, Washington, D.C. Mr. Wood also is president of Lorain Slag Co. C. W. Ireland, president, Birmingham Slag Co., Birmingham, Ala., has been named vice-president; E. W. Bauman, managing director, and W. S. Shaw, treasurer. Members-at-large, executive committee, are: R. O. Dierker, president, Duquesne Slag Products Co., Pittsburgh, Penn.; Edward C. Levy, president, Edward C. Levy Co., Detroit, Mich.; R. K. Plumb, manager, slag sales, U. S. Steel Corp., Pittsburgh, Penn.; and H. N. Snyder, president, The Buffalo Slag Co., Inc., Buffalo, N.Y.

New officers and directors of the New York State Concrete Masonry Association. Seated, left to right: Lawrence Dagostino, vice-president; William C. Homer, president; Salvatore Picone, secretary; and Ralph J. Dalbey, treasurer. Standing, left to right: Alfred L. Cossitt, Frederick W. Reinhold, John D. Daly, Benjamin H. Palmer, Jr.; Lee Taylor; and Henry C. Quaritius, Jr.

Lehigh Chief Chemist

WILLIAM D. PRITCHARD was recently promoted to the position of chief chemist of the Fordwick, Va., plant of Lehigh Portland Cement Co., Allentown, Penn. A native of Bangor, Penn., he joined the company following three years' service with the U.S. Navy in World War II, and has been senior laboratory assistant at the Sandts Eddy, Penn., plant. For the past year he has been serving as chemist at the plants at Buffalo and Alsen, N.Y., and Fogelsville, Penn.

Director of Research

DR. PAUL J. FLORY, professor of chemistry and acting chairman of the department of chemistry, Cornell University, Ithaca, N.Y., has been appointed executive director of research for Mellon Institute of Industrial Research, University of Pittsburgh, a post that has been established since the recent retirement of Dr. Edward R. Weidlein as president.

Assistant Superintendent

EDWARD MCCLINTOCK has been appointed assistant superintendent of the Hudson River shipyard division of New York Trap Rock Corp., New York, N.Y. He has been serving as assistant to the marine superintendent, George I. Smith.

Concrete Products President

THOMAS OAKLEY has been elected president of Concrete Products, Ltd., and Construction Supplies Corp., Ltd., Toronto, Canada. Richard D. Hunter was named first vice-president and general manager; and William T. Sinclair was made second vice-president.

Personnel Manager Retires

CECIL CAULKINS, personnel manager of the South Dakota State Cement Plant, Rapid City, S.D., has retired after 33 years of service. He was pre-

(Continued on page 41)

EDITORIAL

Will New Roads Save Live

With the nation's highway death tolls rising year by year, the new Federal Inter- Act offers a strong ray of fact

41,000 miles of new expressway be built. They will be wider, st safer roads. Crossings will b eliminated. If speeds are sen will be fewer acci

IKE SIGNS BIGGEST ROAD BILL EVER

Washington, D. C., June 29. Among some 50 bills signed by the President today was the $32,900,000,000 Federal Interstate Highway Aid bill passed by

ONE GOAL

Since 1949, Caterpillar, your partner in earthmoving progress, has campaigned for better highways

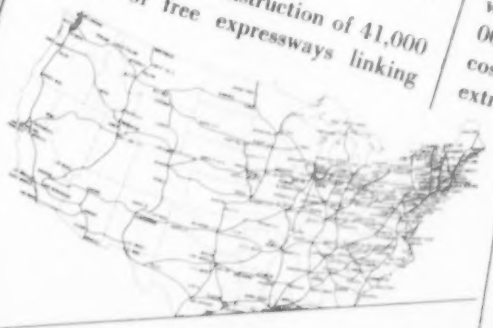
41,000 MILES
OF NE
ON T

Washingto
President

$32.9 BILLION HIGHWAY BILL GETS GREEN LIGHT FROM IKE

Washington, D. C., June 29—The largest public works program in history was signed into law by President Eisenhower today.

It calls for construction of 41,000 miles of free expressways linking



practically every large city and state capital in the nation. The building will take 13 years and cost $32,900,000,000. But the huge program will cost the average drive extra

GIANT ROAD BILL SIGNED

$33 Billion Highway Bill OK'd by Ike

Washington, D. C., June 29. President Eisenhower today signed into law the Federal Interstate Highway bill, largest public works program in history. It provides for Federal expenditures of $32,900,000,000 to build 41,000 miles of superhighw next 13

9500 LIVES SAVED

There were many good and compelling economic reasons for

victim
roads

Re

IKE APPROVES BILLIONS FOR NEW HIGHWAYS

Georgia's Share of Highway Funds Over $800 Million

Washington, D. C., July 2. The Government will spend $838,700,000 for highways in Georgia dur

March, 1949 | November, 1949 | January, 1950 | February, 1950 | September, 1950

November, 1950 | February, 1952 | June, 1952 | September, 1952 | November, 1952

February, 1953 | March, 1953 | May, 1953 | September, 1953 | October, 1953

November, 1953 | January, 1954 | February, 1954 | May, 1954 | June, 1954

Early in 1949, Caterpillar Tractor Co. began a series of full-page 4-color advertisements in *The Saturday Evening Post* and other national magazines. These pages were designed to forcefully awaken the public to the frightful toll of lives and money taken yearly by inadequate roads.

The 40 advertisements, reproduced in miniature above, give some idea of

January, 1955

February, 1955

March, 1955

April, 1955

May, 1955

July, 1955

September, 1955

October, 1955

November, 1955

December, 1955

January, 1956

February, 1956

March, 1956

April, 1956

May, 1956

June, 1956

July, 1956

August, 1956

September, 1956

October, 1956

the continuing impact carried by this campaign. In the last two years emphasis has been changed to show how various states are meeting the highway problem.

With a strong awareness of highway needs now in the public mind, the new Federal Interstate Highway Program has been enacted into law. The next two pages show a breakdown of probable highway expenditures by states.

Ala. $730,800,000

Ariz. $424,200,000

Ark. $529,000,000

Cal. $2,019,600,000

THE NEW INTERSTATE HIGHWAY SYSTEM AND PROPOSED FEDERAL AID TO STATES

These are the estimated Federal grants to states for the next 13 years, to be used for both the Interstate Highway System and other Federal-Aid roads.

These figures represent 90% of the cost for the Interstate System, 50% for the remainder.

Minn. $829,600,000

Nev. $371,100,000

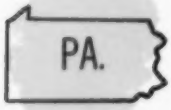
N.H. $204,800,000

N.J. $753,900,000

N.M. $450,700,000

Okla. $661,200,000

Ore. $507,900,000

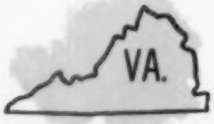


Pa. $1,865,800,000

R.I. $216,400,000

Utah $351,900,000

Vt. $201,200,000



Va. $718,400,000

Wash. $582,000,000

Col. $518,300,000

Conn. $342,500,000

Del. $202,200,000

Fla. $608,400,000

Ga. $838,700,000

Idaho $364,300,000

Ill. $1,668,500,000

Ind. $872,100,000

Iowa $751,300,000

Kan. $683,300,000

Ky. $666,900,000

La. $588,500,000

Me. $284,400,000

Md. $418,700,000

Mass. $735,700,000

Mich. $1,277,600,000

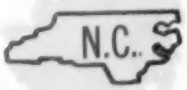
Miss. $574,000,000

Mo. $986,400,000

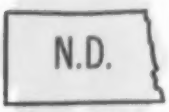
Mont. $539,000,000

Neb. $544,100,000

N.Y. $2,469,500,000



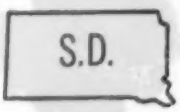
N.C. $903,500,000



N.D. $406,900,000

Ohio $1,509,300,000

S.C. $476,900,000



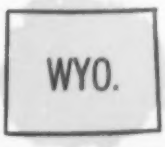
S.D. $427,700,000

Tenn. $766,800,000

Texas $2,112,500,000

W.Va. $418,200,000

Wisc. $822,600,000



Wyo. $369,900,000

D.C. $220,900,000

CATERPILLAR—
your partner in earthmoving progress—
has the equipment ready for the big job

The mighty D9, with 320 Turbocharged engine HP and No. 9S Loadshape Bulldozer, heads the line of six Caterpillar crawler Tractors. The other machines, with engine HP, are: D8—191 HP, D7—128 HP, D6—93 HP, D4—63 HP, and D2—48 HP.

The Turbocharged 300 HP DW21 with the 25 cu. yd. (heaped) capacity No. 470 LOWBOWL Scraper provides a fast, highly maneuverable earthmoving unit.

The No. 977 Traxcavator of 2¼ cu. yd. bucket capacity is the largest of the three Cat-built tractor-shovels. The No. 955 has a 1½ cu. yd. bucket; the No. 933, a 1 cu. yd. bucket. Lift forks and other attachments give added versatility to these highly productive units.

The No. 8 Ripper, for use with the D8 Tractor, is one of a line of five Cat-built tractor-mounted rippers. In addition to the No. 8, they are: the No. 9, the No. 6, the No. 4 and the No. 2 for use with other Caterpillar-built Tractors and Traxcavators.

The four-wheel DW20, with Turbocharged 300 HP Cat Engine, teams up with the LOWBOWL No. 456 Scraper (25 cu. yd. capacity) for high-speed earthmoving on longer hauls. The four-wheel 186 HP DW15 works with the No. 15 Scraper (12½ cu. yd. capacity).

Representative of the Cat four-wheel, crawler-drawn Scraper line is the No. 463. Heaped capacities are: No. 90, 27 cu. yd.; No. 463, 25 cu. yd.; No. 70, 15 cu. yd.; No. 60, 9 cu. yd.; and No. 40, 4.5 cu. yd.

Caterpillar Electric Sets are available in eight basic models ranging from 30 to 350 KW. Available in portable units, they are a reliable and convenient source of electric power.

Nine basic sizes, from 65 to 650 HP, make up the line of Caterpillar Diesel Engines. They are used by over 100 manufacturers to power excavators, compressors, crushers and other construction machines.

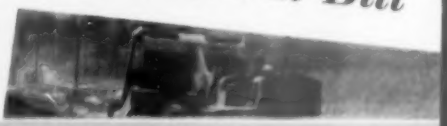
Heading the line of three Cat Motor Graders is the 115 HP No. 12. The No. 112 has 75 HP; the No. 212 has 50 HP.

N. J. GIRDS TO PUSH ROAD CONSTRUCTION

Highways Officials and Senators Confer on Possible One-Cent Gas Tax Rise

Trenton, June 29. The ex- | tion, according to state high- | a 90-10 basis for interstate
way officials here. New Jersey | roads, and one-third on a 50-50
will receive over a billion dol- | basis to finance primary, sec-
ondary and urban roads. Th

41,000 Miles of Super-Highways i New Federal Bill



Next year—and the years ahead—offer you the greatest challenge in the whole history of construction. The highway work alone will dwarf any previous undertaking.

Caterpillar has been preparing for this time. Plant capacity has been doubled and is still expanding. New and improved products are now in full production, giving you equipment designed and built to do more work, faster, at lower cost. When you bid on a contract, that kind of equipment can make the difference between profit and loss.

Caterpillar leadership is leadership *in action*. It never stands still. The full resources of Caterpillar research, both in the laboratory and right in the field with you, are constantly devoted to the development of even more efficient engines and earthmovers—equipment that keeps pace with your increasing opportunities.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

*Caterpillar, Cat and Tractavator are Registered Trademarks of Caterpillar Tractor Co.

YOUR PARTNER IN EARTHMOVING PROGRESS

STATE TO GET $230 MILLION IN FEDERAL FUNDS BY 1959

Illinois Total Over $1½ Billion for 13-Year Highway Building Era

Washington, D. C., July 3. Estimates released by the U. S. Bureau of Public Roads call for $229,700,000 of Federal funds to be spent in Illinois in three years, starting July 1, 1956.

This represents 90 per cent of Interstate road construction costs. The state will furnish the additional 10 per cent. For the full 13-year period covered by the Federal Highway bill it is estimated Illinois will receive nearly $1,700,000,000.

41,000 MILES OF HIGHWAYS APPROVED BY PRESIDENT

Washington, D. C., June 29—You're going to get 41,000 miles of new four, six and eight lane highways in the next 13 years.

It became official today when President Eisenhower signed the Federal Interstate Highway bill. Under the new law, the Federal government will spend $32,900,000,000 through 1969 for the new roads.

The bill calls for a vast network of free superhighways linking most major cities and state capitals.

HIGHWAY BILL BOON TO UTAH ROAD SYSTEM

Salt Lake City, July 3—Over-all spending in Utah for highways in the next three years will rise from $25.2 million to $88.6 million. And for the succeeding 10-year period it will continue in the $75 to $95 million bracket.

This will result from the new 13-year road building program signed into law by President Eisenhower. By 1970 Utah will be criss-crossed by splendid four and six lane divided highways.

The state now has some 700 miles of interstate highways and the bill provides for a rebuilding of an amount equal to this mileage.

$32.9 Billion Highway Bill a Bargain for Car Owner

New Taxes on Gas, Tires to Cost Average Driver Only $8.60 per Year

Washington, D.C., July 2. The Federal Highway Aid bill, which has been high on the President's list of must legislation, is now law. As highlighted

It is a pay-as-you-go program. But the $33 billion total, to be paid for by a 1-cent increase in the gasoline tax, 3 cents a pound for tires and a 2 per cent rise in the price of trucks, buses and trailers, will result in safer, more economical driving. The average car owner will pay only $8.60 a year and should save much in fuel, time,

sented a 35 mm. camera by John Potter, secretary of the cement plant commission, at ceremonies honoring his long service.

Calaveras Appointments

EARLE M. BAGLEY, JR., has been appointed superintendent of raw materials at the San Andreas, Calif., plant of Calaveras Cement Co., San Francisco, Calif. He was formerly assistant quarry superintendent and will be succeeded by Edgar Andersen. James C. Powell has been named plant engineer. Philip J. Eldredge has been appointed sales representative in the newly opened Santa Jose office to service dealers and contractors in the south coast area of northern and central California; William J. Gray has been named contractor sales representative and John L. Garnvy, Jr., dealer sales representative in Santa Rosa and will cover the territory from the Golden Gate bridge north to the Oregon line. Sherman R. Locke has been named dealer sales representative in the East Bay area, with headquarters in Oakland.

General Advertising Manager

R. E. HEIM has been appointed general advertising manager of United States Gypsum Co., Chicago, Ill. He was formerly district sales manager in Boston, Mass. Wallace R. Weidman has been named central division sales manager, succeeding R. M. Beckler, who has retired.

Named Vice-President

HANS ROGGENBURG has been named vice-president of Siscoe Vermiculite Ltd., and Vermiculite Insulating Ltd., both wholly-owned subsidiaries of Siscoe Mines Ltd., Montreal, Canada. Mr. Roggenburg is a director of the Vermiculite Institute.

Plant Manager

LEO DESROSIERS has been appointed manager of the Lamar, Colo., plant of the Valley Concrete Co., Pueblo, Colo., where he will supervise the production of pumice, Duralite and concrete block as well as ready-mixed concrete.

National Director

E. F. SAULSBERRY, general purchasing agent, Ideal Cement Co., Denver, Colo., was recently elected national director of the Purchasing Agents Association of Denver for the year 1956-1957.

John Kenneth Stewart

General Superintendent

JOHN KENNETH STEWART has been named general superintendent of the Wheatland, N.Y., gypsum mine and plant of The Ruberoid Co., New York, N.Y. He was formerly senior mining engineer at the asbestos mine in Hyde Park, Vt. A native of Canada, Mr. Stewart, who has wide experience in mining in Quebec and Ontario, was educated at McGill University, Montreal, Canada, where he received a bachelor of engineering degree and won first class honors in mining engineering.

Vice-President Resigns

GEORGE H. RIEHL has resigned as vice-president and treasurer of the Portsmouth Cement and Lime Co., Portsmouth, Ohio. He has been associated with the company for 35 years. Paul H. Adams, who purchased controlling interest in the company, has been elected president, secretary and general manager.

Manufacturers' Vice-President

STANLEY R. NAVAS, president, Concrete Pipe and Products Co., Richmond, Va., has been elected a vice-president of the Virginia Manufacturers Association. Frank G. Louthan, secretary, was also named executive vice president.

Heads Advertising Department

ROBERT L. FREEMAN, formerly technical service engineer, has been appointed manager of the advertising and promotion department of Huron Portland Cement Co., Detroit, Mich., in a recent announcement.

Assists Vice-President

FRANCIS A. HENNIGAN, formerly manager of the Hannibal, Mo., plant of Universal Atlas Cement Co., New York, N.Y., has been appointed assistant to the vice-president of manufacturing.

OBITUARIES

HARVEY O. WARNER, who from 1942 to 1952 served as a member of the board of directors of Ideal Cement Co., Denver, Colo., died September 21 at the age of 69, after a long illness. Mr. Warner joined the Colorado Portland Cement Co., predecessor to Ideal Cement Co., in 1915 as a salesman. Later he became sales manager, vice-president and manager, and then general sales manager. He retired from active service in 1948.

J. ROBERT NEWBERRY, vice-president in charge of production for The Celotex Corp., Chicago, Ill., died recently at his home in Glenview, Ill. He was 51 years old. Mr. Newberry was also a trustee of the Village of Glenview, and director of the First Federal Savings and Loan Association of Wilmette.

CHARLES L. BEST, assistant chemist at the Egypt, Penn., plant of Giant Portland Cement Co., Philadelphia, Penn., passed away October 2 after a short illness. He was 60 years of age and had been associated with the company since 1916.

HOWARD MCCUTCHEON THOMAS, president and chairman of the board of the Fort Scott Hydraulic Cement Co., Fort Scott, Kan., died suddenly on September 24. He was 62 years of age.

DEWEY F. HOPKINS, manager of the Hughes Concrete Co., Cushing, Okla., died September 27 following a short illness. He was 58 years old and had been manager of the ready-mixed concrete firm since 1946.

JOHN MOORS ALLEN, chairman of the board of the Erie Sand and Gravel Co., Erie, Penn., died September 28 at the age of 56.

RALPH D. CLINE, purchasing agent for the Standard Slag Co., Youngstown, Ohio, died September 29 at the age of 65.

ROBERT CHATFIELD, president, County Concrete Co., Newtown, Ky., died recently at the age of 32.

How many yards per hour?

PAYLOADER® "more yardage" features

Balanced four-wheel-drive, torque-converter and exclusive power-transfer differentials give more effective traction on mud, gravel, ice and snow for more reliable crowding power. Coupled with this crowding power is the unusual pry-out action and 40° tip-back of the bucket at ground level to get full bucket loads with less spillage loss. The result is that a "PAYLOADER" can

dig more

The 40° tip-back of the bucket at ground level permits a carry position that is close and low for maximum stability and with bucket opening almost level to prevent spillage of heaped loads. Hydraulic system shock absorber cushions the loaded bucket while carrying, smooths the ride and allows higher carrying speeds with less spillage. These features enable a "PAYLOADER" to

carry more

It's the yards delivered that count on any job and that's where a "PAYLOADER" really pays off. It gets more load in the bucket with less spillage to begin with — it can carry at higher speeds with less spillage — it can maneuver faster because the power-shift transmission requires no stopping for ANY shift. All these advantages enable "PAYLOADER" tractor-shovels to

deliver more

More yards on any job!

No one knows better than you that a rubber tired tractor-shovel can do so many jobs, under so many kinds of job conditions, that the yardage handled can vary considerably. That's why yardage figures can be so misleading unless all the factors are taken into consideration . . . kind of material . . . whether in-place or rehandling . . . operator efficiency . . . length of haul . . . waiting time for trucks . . . one location or scattered jobs, and many other variables that affect daily output.

But of this you can be certain . . . on any given job the new "PAYLOADER" tractor-shovels will deliver more yards per day than any comparable size tractor-shovel . . . and will do so continuously shift after shift.

The knowledge and experience gained in building thousands of tractor-shovels over the past 30 years is your assurance that a "PAYLOADER" is superior in design, engineering and performance . . . that it will outperform and outproduce any other comparable unit on any job.

So don't be deceived by "box-car" yardage figures . . . take a close look at the "PAYLOADER" . . . on *your* job . . . and you be the judge. Your "PAYLOADER" distributor will be happy to arrange a demonstration at your convenience.

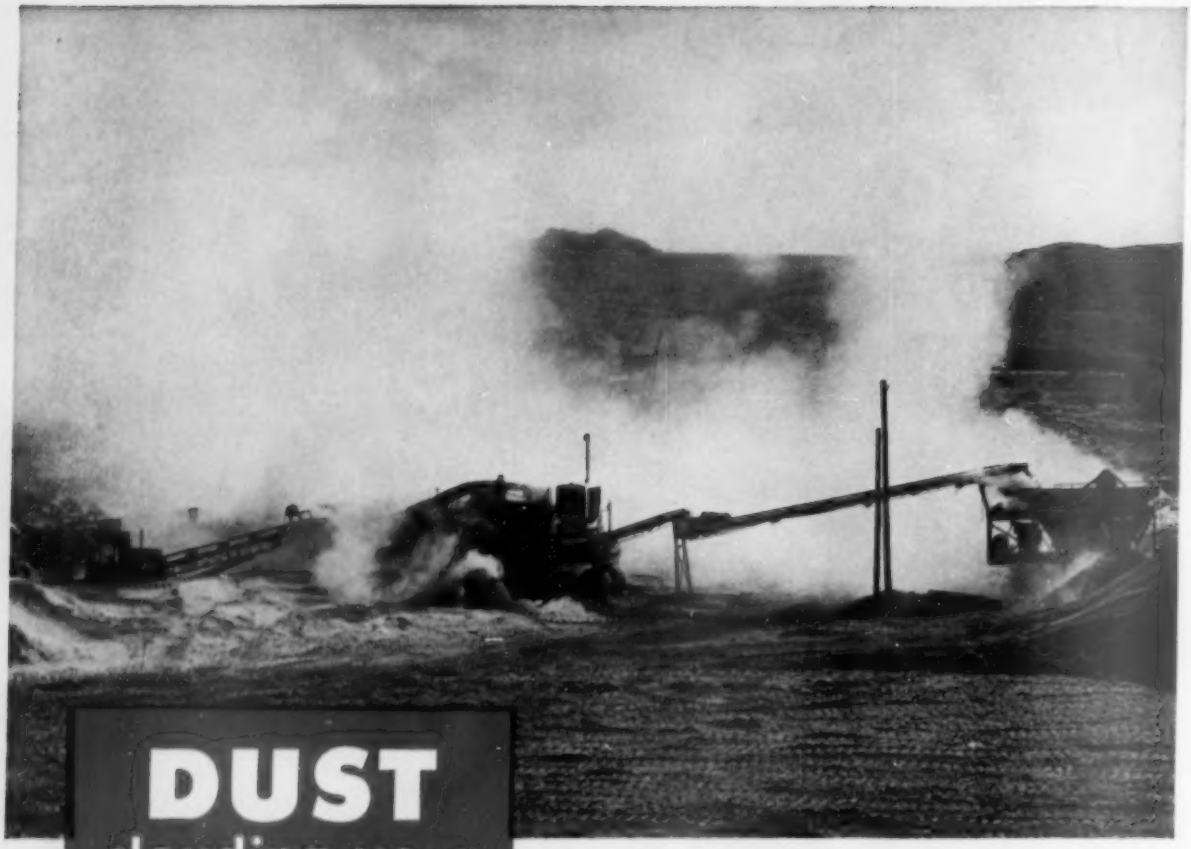
THE FRANK G. HOUGH CO.
705 Sunnyside Ave., Libertyville, Ill.

Send data on 4-wheel-drive "PAYLOADER" tractor-shovels as checked

- ☐ HO (2¼ yd. payload, 1¾ yd. struck)
- ☐ HH (1¾ yd. payload, 1-1/3 yd. struck)
- ☐ HU (1-1/3 yd. payload, 1 yd. struck)

Name_____
Title_____
Company_____
Street_____
City_____
State_____ 7

PAYLOADER®
THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.



DUST clouding your efficiency?

...Here's how to beat it

USE *Texaco Marfak*, the world-famous chassis lubricant that seals out dust and dirt, seals itself in the bearings, keeps wear at a minimum. *Marfak* prevents rust, too. And the protection lasts longer, because *Marfak's* tough film stays put even under heavy shock loads. Naturally, efficiency goes up while maintenance costs drop.

Texaco Marfak Heavy Duty does the same fine job in wheel bearings—fights off dirt and moisture, assures ample protection and safer braking for thousands of extra miles. No seasonal change is needed.

To simplify chassis, wheel bearing, water pump and other grease lubrication with *just one lubricant*—use *Texaco Marfak Heavy Duty Special 2*. This lithium-base, multi-purpose grease pumps easily at low temperatures, always lubricates effectively. It resists water washout, stays stable in the toughest service.

More than 625 million pounds of Texaco Marfak have been sold

Texaco Track Roll Lubricant on rollers assures smoother operation, provides top protection against rust and wear.

Find out what made-for-the-job Texaco Lubricants can do for your operation. Get full details from a Texaco Lubrication Engineer. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

Enter 1208 on Reader Card

INDUSTRY NEWS

Cover Picture

THIS MONTH'S COVER ILLUSTRATION shows the three screening sections of the Lynchburg Stone Division plant, Rockydale Stone Service Corp., Roanoke, Va. The plant is located about five miles southeast of Lynchburg. Principal plant units include a Lippman 3042 primary jaw crusher, a 3500-ton surge pile, and three screening stations, the first and third being mounted side by side. Secondary and tertiary reduction are handled by three cone crushers. The use of a vibrating pan feeder for the jaw crusher is one of the unique features of the plant.

Mine Florida Limestone

INDUSTRIAL LIMEROCK, INC., Sunniland, Fla., has been incorporated to mine and market limestone for roadbuilding material, concrete aggregate, and agricultural limestone. The 12,000 acre tract in Collier County near 12 producing oil wells is said to possess a 200-year production potential, and may become the site also for a cement manufacturing plant.

Edwin L. Wheeler of Wheeler Rock and Fill Co., Miami, Fla., is president of the new firm. Joseph Abelow, Miami, is secretary-treasurer, and John Price, Fort Myers, Fla., is a major stockholder.

Locate Silica Sand Deposit

INDIANA GEOLOGICAL SURVEY, Indiana University, Bloomington, Ind., has announced that a 25,000,000-ton deposit of high-silica sand has been located in Harrison County southwest of New Albany, Ind. Determination of the extent of the deposit has been made by B. H. Putnam and associates, whose interest in the sand was aroused by the Survey's earlier report that the sand could be used for glass making.

Located 1½-mi. from the Ohio River and known as the Ohio River formation, the Harrison County Deposit is 400 ft. above it. Sand could be carried down a sluiceway directly to river boats. Another deposit near Pekin, Ind., has not been subject to exploration.

Volunteer Portland Expands

VOLUNTEER PORTLAND CEMENT CO., Knoxville, Tenn., is undergoing an expansion program which will increase its capacity by 40 percent. A fourth kiln will step up annual production to 3,000,000 bbl. Eight storage silos were added last year. Volunteer president, Charles F. Lewis, said that the new kiln is scheduled for use early in 1957.

Two New Gypsum Plants

NATIONAL GYPSUM CO., Buffalo, N. Y., announced a $19 million expansion program involving construction of two gypsum building products plants, at Lorain, Ohio, and Waukegan, Ill., and the development of a 75,000,000-ton gypsum deposit near Tawas City, Mich.

Construction of the plants, along with docks and harbors, will get under way next summer, according to Melvin H. Baker, chairman. Funds for the program were raised in June when the company sold 416,666 shares of its common stock.

The Waukegan plant will be on a 21-acre site along Waukegan harbor on land acquired from the Elgin, Joliet, and Eastern Railway Co. The Lorain, Ohio, plant will be on a 53-acre site on the Black river. Each plant will be about one-quarter mile long and will produce annually enough wallboard, sheathing, lath and plaster for 30,000 homes.

Lake ore ships will transport the raw gypsum from the 2700-acre deposit to the plants. Mr. Baker said the deposit will give the company a 100-year supply of gypsum.

Alpha Adds Silos

ALPHA PORTLAND CEMENT CO., Easton, Penn., is adding six new storage silos having a capacity of 100,000 bbl. to its Cementon, N. Y. plant. Increase of the plant's production capacity last year created the demand for additional storage. The 28-ft. dia. x 119-ft. 6-in. silos will be ready for use about January 1, 1957. Macdonald Engineering Co., Chicago, Ill., is general contractor for the silo construction. An addition to the packhouse for use in packing mortar cement will be built after the silos are complete.

Aggregate Firm Moves

GREAT WESTERN AGGREGATES, INC., formerly maintaining headquarters at its Laramie, Wyo., plant, announces the address of its new offices, 806 Boston Bldg., 828 Seventeenth St., Denver 2, Colo.

(Continued on page 48)

Architect's model of the new administrative center for International Minerals and Chemical Corp., Skokie, Ill. The new project will provide office space for estimated growth through 1965. Construction will begin in early 1957

Why TDA® is the

World's Largest Manufacturer of Driving Axles for Medium and Heavy Duty Commercial Vehicles

In its many years of service to American industry, Timken-Detroit® has produced more than 6,300,000 driving assemblies for powered vehicles (industrial, agricultural or automotive). The "Ten Automotive Firsts" on the opposite page are but a few of the significant results of TDA research and development.

these 10 Automotive Firsts have established TDA® leadership

in producing over

5,000,000

Driving Axles for America's Trucks and Busses

plus 1,300,000 for other powered units!

1. Tandem Driving Axles – TDA developed the first tandem driving axles for the industry to increase the capacity of vehicles.

2. The Double-Reduction Axle (both single and two-speed types) – TDA developed the first double-reduction axles, principally to permit higher axle shaft torque values for nominal pinion input torques.

3. The 3-for-1 Axle – TDA introduced the principle of interchangeability of three optional drives in the same housing . . . single-reduction . . . single-speed double-reduction . . . and two-speed double-reduction.

4. Heavy-Duty Hypoid Gearing – This successful TDA innovation made possible larger, stronger, longer-wearing pinions of greater torque capacity for the same tooth load at the pitch line than corresponding spiral bevel pinions.

5. The Power-Shifted Two-Speed Axle – TDA's power-shift made the two-speed axle universally acceptable. It simplified driver operation, providing improved vehicle control and safety.

6. Unit Mounted "P" Series Power Brake – This highly efficient, compact, easily maintained air brake with lightweight fabricated steel shoes has all parts "unit mounted" on a spider.

7. Tapered Brake Linings – TDA "Econo-Liner" tapered brake linings, first to offer maximum thickness in the area of greatest wear which resulted in uniform thickness when worn.

8. First 100,000 Mile Guaranteed Axle Shaft – Torsion flow forging, controlled gradient hardness heat treating and shrouded spline design make the TDA shaft the best in the industry; first to be guaranteed for 100,000 miles.

9. The Tubular Trailer Axle – TDA adapted the tubular form to trailer axles to make a lighter, stronger axle than any previously available.

10. The "Wide Range" Two-Speed Axle – TDA was the first to develop two-speed axles with ratios of 2 to 1 and 2½ to 1 between the upper and lower ranges, to overcome the basic limitations of mechanical and automatic transmissions.

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TIMKEN Detroit AXLES

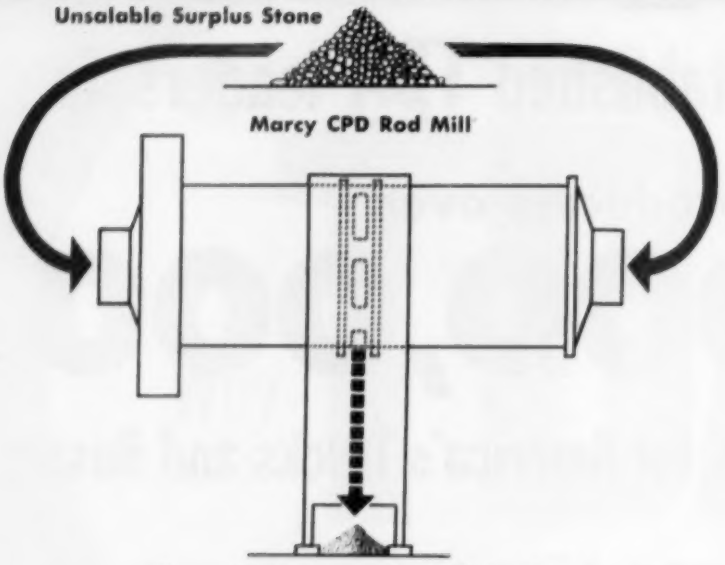
TIMKEN-DETROIT AXLE DIVISION
ROCKWELL SPRING AND AXLE COMPANY
DETROIT 32, MICHIGAN

Accepted T D A Standard
TRADE MARK REGISTERED

Plants at: Detroit, Michigan
Oshkosh, Wisconsin • Utica, New York
Ashtabula, Kenton and Newark, Ohio
New Castle, Pennsylvania.

WORLD'S LARGEST MANUFACTURER OF AXLES FOR TRUCKS, BUSSES AND TRAILERS

Turning stone into dollars



Concrete, Mortar, or Asphalt Sand
AT A PROFIT

Flexibility of Marcy CPD Mills Permits Production of Concrete, Mortar, or Asphalt Sand

Operating Advantages—Compared with crushing, experience has proved these additional advantages of grinding by Marcy CPD Mills:

Low Cost—low maintenance, less steel consumption and less power per ton result in an overall cost generally less than 25c per ton, exclusive of ammortization.

Flexibility—by varying rate of feed, pulp dilution, and discharge port area it is possible to change gradation of finished product to meet different specifications.

Wet or Dry Grinding—on dry grinding moisture content is not as critical as with other type crushers.

Cleaner Operation

Capacities—from 2 to 200 dry tons per hour

Marcy Center Peripheral Discharge Rod Mills have been earning profits for sand and gravel operators since 1925. Let our engineers, experienced in manufacture of sand, assist you on your problems.

WRITE FOR CATALOG

The Mine & Smelter Supply Co.
DENVER 17, COLORADO

*Both Marcy and Massco are registered trademarks.

Enter 1313 on Reader Card

Plan Gypsum Products Plant

WESTERN GYPSUM PRODUCTS LTD., Winnipeg, Man., Can., a wholly-owned subsidiary of British Plaster Board (Holdings) Ltd., London, announced the purchase of a 14-acre site at Vancouver Harbor, B.C., on which it will build a $3 million gypsum products plant. Construction will begin early in 1957, with initial production scheduled for a year later. Daily capacity has been set at 150,000 sq. ft. of gypsum board products, and 100 tons of plaster.

Gypsum rock will be transported from San Marcus Island, Mexico, to the company's dock by a 17,000-ton freighter. Western Gypsum also has a gypsum mine in Manitoba and products plants at Winnipeg and Calgary. The Winnipeg plant has been expanded 50 percent over the past 18 months.

Portland Cement Production

THE PORTLAND CEMENT INDUSTRY produced 30,055,000 bbl. of finished cement during August, 1956, as reported by the Bureau of Mines. This was an increase of 8 percent over August, 1955. Mill shipments totaled 33,324,000 bbl., an increase of 6 percent, compared with August, 1955, while stocks on hand were 17,046,000 bbl., 34 percent more than on the same date a year ago. Clinker production during August, 1956, amounted to 28,344,000 bbl., an increase of 8 percent from the August, 1955 figure. The output of finished cement came from 159 plants in 37 states and Puerto Rico. During the same period of 1955, 27,861,000 bbl. of finished cement were produced.

Lease Feldspar Mine

INTERNATIONAL MINERALS AND CHEMICAL CORP., Chicago, has leased a feldspar mine at Casper, Wyo., to R. V. McGuire, and the mine may be put in operation by May or June, 1957. Equipment has been installed on the mining site on the Casper Mountain, including two wagon drills, a 440-volt electric plant, electric motors, and a 400-ft. compressor. Mr. McGuire said he expects to open up other feldspar deposits already under lease in the area of the present mine.

Gravel Plant Approved

L. E. SPRAGUE, Newport Beach, Calif., received the approval of the County Board of Supervisors for operation of a gravel plant and rock crushing and screening plant in Temescal Wash near Corona, Calif.

(Continued on page 54)

Enter 1312 on Reader Card

"Eucs" STEP UP PRODUCTION...

Full length and width bottom door opening and wedge shape of body provides fast, clean dumping into the drive-over hopper at the plant. In just a few seconds the "Eucs" dump their loads and are on the way back to the pit.

...at new Quigley Plant of Ft. Worth Sand and Gravel Co.

Powered by a 300 h.p. engine 10 speed transmission, the "Eucs" maintain fast travel speed on the well maintained haul roads. One-way hauls from pit to plant are up to 3 miles long.

Three Bottom-Dump Euclids of 17 yd. struck capacity are working 10 hours a day, five and one-half days per week, at the new Quigley plant of Ft. Worth Sand and Gravel Company. One of the most modern in the Southwest, it recently replaced the oldest and largest of the company's four plants.

A 2½ yd. dragline loads the "Eucs" with sand and up to 3 inch gravel for the 1½ to 3 mile haul from pit to plant. The Euclids dump their 22-ton loads into a drive-over hopper that feeds the classifier. Average hourly production is 255 tons.

Euclid equipment has reduced hauling costs on hundreds of mine, quarry and industrial operations. Have your Euclid dealer give you full details on the complete line of Rear-Dump and Bottom-Dump haulers for off-highway work, self-powered Scrapers and the TC-12 Crawler Tractor. He has facts and figures that show why owners everywhere have proved that ***Euclids are your best investment.***

EUCLID DIVISION, GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

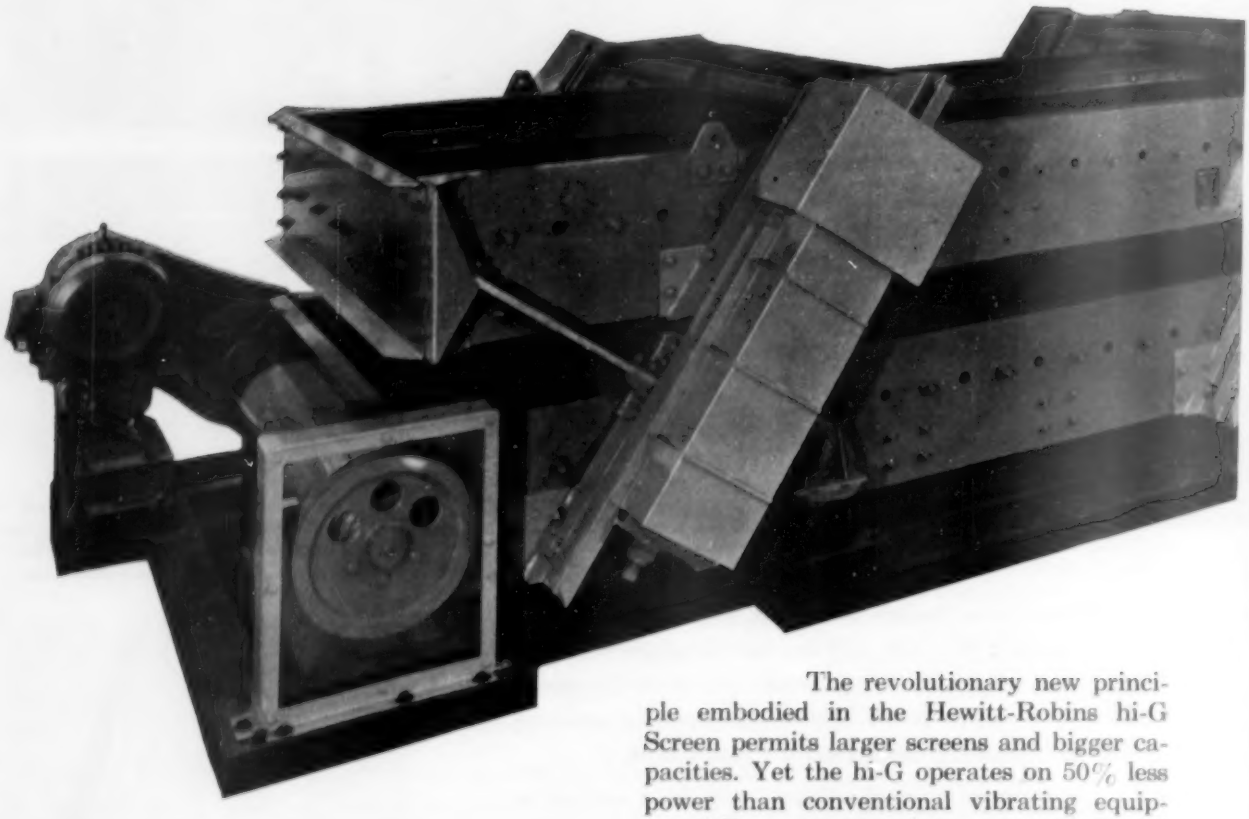
Draglines with 2 yd. and 2½ yd. buckets and 60' booms load 22 tons of sand and gravel at the pit. The low, wide hopper of the "Eucs" makes an easy target for fast easy loading with minimum spillage.

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

HEWITT-ROBINS *hi G* SCREENS

50 Per cent Savings



The revolutionary new principle embodied in the Hewitt-Robins hi-G Screen permits larger screens and bigger capacities. Yet the hi-G operates on 50% less power than conventional vibrating equipment! Even screens as large as 6' wide by 28' long require no more than a 20-HP drive.

Featuring an unusually sharp screening action, and a choice of stroke and speed combinations, the hi-G can be made in larger sizes than any other vibrating screen on the market.

New "Modified Resonance" Principle

Utilizing the principle of "modified reso-

INDUSTRIAL DIVISIONS PRODUCTS

VIBRATING SCREENS • VIBRATING CONVEYORS

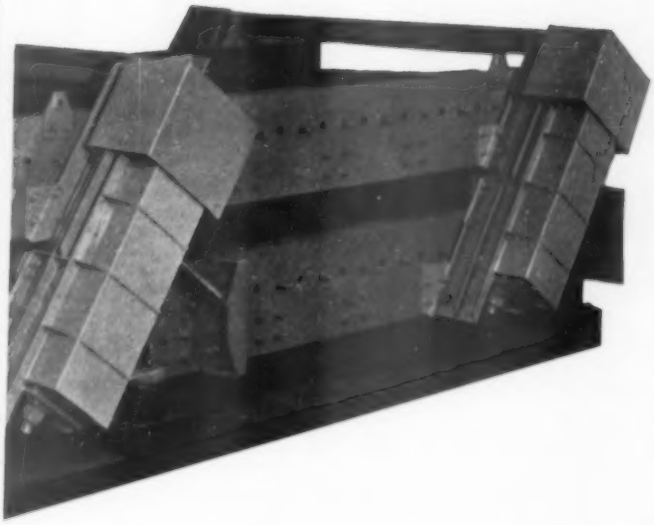
CONVEYOR BELTING • CONVEYOR MACHINERY

INDUSTRIAL HOSE • DESIGN, MANUFACTURE, ENGINEERING AND ERECTION OF COMPLETE BULK MATERIALS HANDLING SYSTEMS

"GLIDE RIDE" THE NEW MOVING SIDEWALK

HR HEWITT

SAVE POWER *Possible*



nance," the new Hewitt-Robins hi-G Screen develops a controlled, extremely sharp vibrating action. This resonance is induced by a relatively small mechanical exciter producing powerful vibrations with added "kick" to separate materials according to size.

If you need larger screens—screens that operate on or near the horizontal and still screen at large openings—*screens with readily accessible lower decks for easy observation, spraypipe installation and quick cloth changes* . . . the hi-G Screen is your answer. For information about hi-G Screens and other Hewitt-Robins vibrating equipment, contact our nearest sales office or write to our offices in Stamford, Connecticut.

HEWITT-ROBINS VIBRATING EQUIPMENT FOR THE AGGREGATES INDUSTRY

GYREX SCREENS. General-purpose, positive-stroke, 4-bearing screen with amazing versatility of application and an unsurpassed record for stamina in service.

STYLES M and MS VIBREX SCREENS. Full-floating, unbalanced, pulley-type, 2-bearing screen. Offers sharp sizing of a wide variety of materials at low cost.

STYLE J VIBREX SCREENS. General-purpose screen applicable to a wide variety of screening operations. Wide range of sizes for suspended mounting.

STYLE HS HIGH-SPEED VIBREX. For fine screening applications (up to 100-mesh in some cases). Highly effective circle-throw screening action.

ELIPTEX SCREENS. Exclusive 3-way elliptical motion for sharpest sizing and most effective dewatering. Horizontal-operating flat screens.

CAR SHAKEOUTS. Both Heavy-Duty and General-Service units for unloading all sorts of materials from hopper cars faster, more efficiently and more economically.

VIBRATING FEEDERS. Fully mechanical vibrating feeder. Easy to install, operate and maintain. Extremely high capacities at very low power consumption.

SCREEN CLOTH. Wire cloth in a variety of sizes, weaves and materials for virtually every sizing, separating or screening operation.

FOR SERVICE AND INFORMATION ON BELTING AND HOSE CALL YOUR LOCAL HEWITT-ROBINS INDUSTRIAL SUPPLY DISTRIBUTOR LISTED IN THE "YELLOW PAGES"

-ROBINS

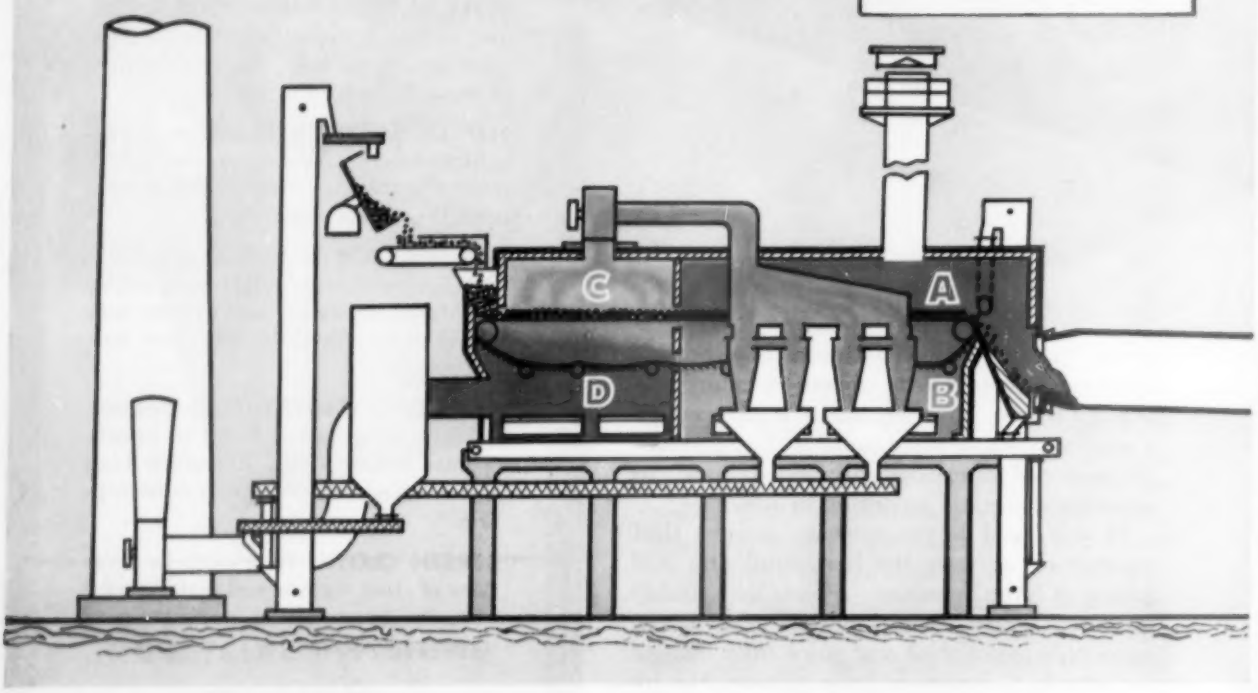
THE ACL SYSTEM

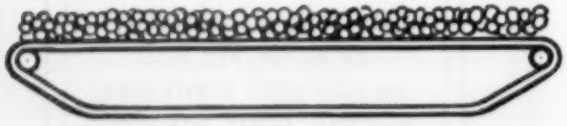
Cuts Cost

. . . puts you in a better competitive position—HERE'S WHY

LESS DUST LOSS

Double pass of gases through traveling bed of pellets reduces dust loss below 1% of feed weight without an additional dust-collecting system. Valuable processed material is saved. Dust load of exhaust gas is lower than in any other system.



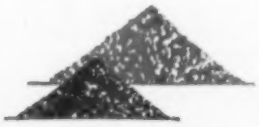


Traveling Grate Affords Many Advantages Because feed volume on traveling grate is constant, kiln operation is uniform and more efficient. There is no segregation of mix. Pelletizing locks in and maintains proportions of components. "Flushing" is eliminated, "ringing" minimized. Voids between pellets permit escape of moisture and gases without fluidization of bed. Because clinker maintains pelletized characteristics, it moves through the rotary kiln uniformly and burns easily.

EFFECTIVE DUST FILTRATION . . . efficient heat transfer . . . more uniform, better burning clinker . . . substantial savings in fuel, power requirements, space and manpower . . . maintenance economy—all these im-

ALLIS-

of Producing Cement

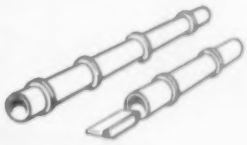


LESS FUEL

Fuel consumption for ACL systems now in operation averages 600,000 Btu per barrel of clinker. Conventional long, dry-process kilns range from 750,000 to 1,000,000 Btu. Powdered coal, fuel oil, natural or coke oven gas may be used.

LESS POWER

The ACL system for burning cement clinker requires about 2.3 kwhr per barrel of clinker for operation of kiln department. This is about one-third less power than required by rotary kilns using other preheating systems.



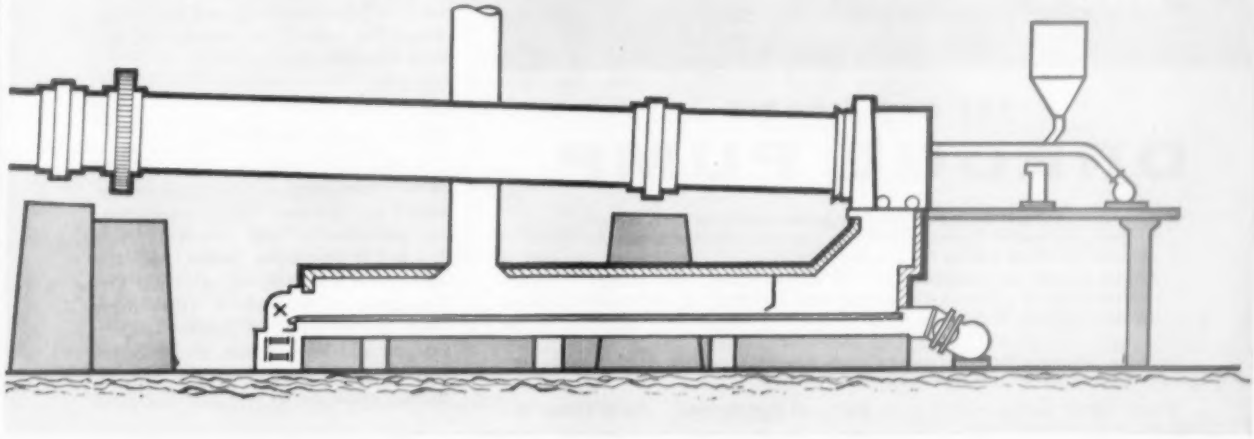
LESS SPACE

Entire ACL system—grate, kiln and cooler — is about 40% shorter than conventional long kiln installations. The totally enclosed traveling grate is about as high as the average kiln feed end housing.

How the Double-Pass System Works

Partial calcining and dust reclamation take place as hottest gases pass through the pellet bed on traveling grate. Gas temperatures are reduced from about 1800 to 500 degrees in this first pass (*A* to *B*). Next, gases pass through cyclones where larger dust particles are removed, and carried back to pelletizer. Final dust filtering takes place as gases pass through moist pellets on feed end of grate. In the second pass (*C* to *D*) gas temperatures are further reduced.

ACL is an Allis-Chalmers trademark.



portant advantages, and many more, are yours with the ACL system.

New Bulletin Available A new bulletin, describing the ACL system, Allis-Chalmers kilns and kiln auxiliaries, is ready for distribution. To get your copy, see your nearby Allis-Chalmers representative or write Allis-Chalmers, Industrial Equipment Division, Milwaukee 1, Wisconsin. Ask for Bulletin 07B8431.

58 Installations by Lellep Licensees since 1950

CHALMERS

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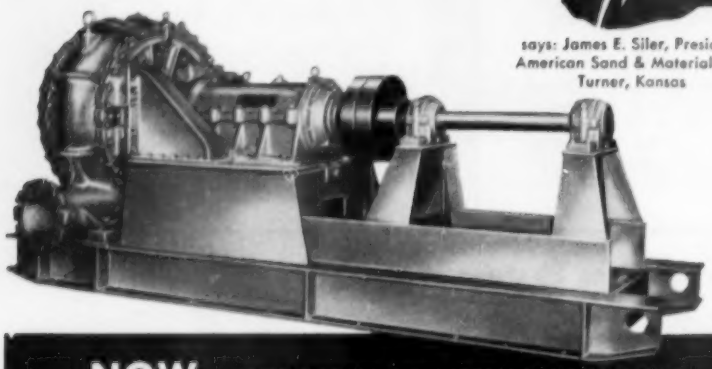
"We Ran Our Morris Pump for 25 YEARS... and then Doubled its Load!"

says: James E. Siler, President
American Sand & Material Co.,
Turner, Kansas



NOW... combining the lower speeds and outstanding reliability of the Morris Type "F"

AND the modern hydraulic design, high heads and efficiency of the Morris Type "G"...

THE NEW MORRIS

DREDGE PUMP

Jim Siler's experience is typical of long-time Morris owners. Heavy, rugged, dependable Morris equipment has been the first choice for abrasive-handling pumps for nearly 90 years.

Morris pumps are engineered to give uninterrupted, year-in-year-out handling of solids at any consistency that is fluid. Some important features of the new Morris GA and GAF Dredge Pumps:

Oversize Shaft and Bearings — easily withstand vibration and shock loads for longer on-the-line service and lower maintenance costs.

Heavy Volute Casing — thicker at points of greater wear, plus a choice of various alloys to increase internal life.

Economical Impeller Design — insures even wear. An enlarged suction shroud maintains effective pressure balancing and high efficiency.

Write today for a complete catalog, or better still, let our engineers help you select the right pump size for your particular needs. No charge or obligation.

MORRIS MACHINE WORKS
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MORRIS *Centrifugal Pumps*

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Mica Mine in Maine

CO-PARTNERS IN A MICA MINE at Albany, Maine, are Paul Hoppes, Lin Carpenter, and John Phillips, all of Spruce Pine, N. C. Two tons of mica are extracted from the mine per week. Three headings, 45-, 75-, and 85 ft. long, and up to 35-ft. high, have been made off the 787-ft. main tunnel.

A dolly truck on a track is used to haul the mined mica to the surface and to lower supplies. Power comes from a gasoline-powered winch, operating steel cables. An automatic dump was devised by Mr. Hoppes by which the cart, reaching the end of the track, automatically trips its load into a waiting truck, requiring no attention from the winch operator. Water seepage into the mine is overcome by two pumps that can handle 20,000 gal. per hr.

Lehigh Expansion Proceeds

LEHIGH PORTLAND CEMENT CO., Allentown, Penn., is proceeding with expansion at its Buffalo, N. Y., plant which, when complete, will allow cement grinding during the winter, instead of storing clinker outside as has been done in the past.

Twenty-four new 32 ft. dia. x 80-ft. storage silos are being added to the plant facilities. These will hold 360,000 bbl. of cement. A large capacity grinding cement mill also is being installed. Other additions are a shipping and sales office building, and an 18-bay garage for repair and storage of cement transport trucks.

Kaiser Acquires Fir-Tex

KAISER GYPSUM CO., INC., wholly owned subsidiary of Permanente Cement Co., Oakland, Calif., announced the purchase of the physical assets of Fir Tex Insulating Board, Inc. The acquisition includes the principal Fir-Tex plant at St. Helens, Ore., more than 16,000 acres of timber land in Oregon and Washington, and Western Insulated Products, Inc., a wholly-owned subsidiary.

G.S.A. Mineral Purchase

GENERAL SERVICES ADMINISTRATION announced new regulations for Government purchase of domestic fluorspar and asbestos. Fluorspar purchases may total up to 250,000 short tons of newly mined acid-grade. A base price of $53 per short dry ton will be paid.

Two thousand tons of two top grades of asbestos may be bought by Dec. 31, 1958, crude No. 1 bringing $1500 per short ton, and crude No.

(Continued on page 56)

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BEHIND LIMA QUALITY

The New York City Water Supply Co. uses these 2 yd. Lima Type 802's (above and at left below) to quarry rock near Neversink, N. Y. Lima quality really pays off in low downtime on tough digging jobs like this.

These LIMAS dig and load rock fast... and stay on the job day-in and day-out

It takes a really rugged machine to dig and load rock day-in and day-out. That's why thousands of users depend on Limas—like the Type 802, 2 yd. shovel shown here—to handle their toughest rock jobs. They know that Lima quality guarantees them the extra-rugged construction needed for high output, low downtime, money-making operation.

It will pay you to get the full story on the complete line of quality-built Limas. Find out today how you can get maximum performance and operating economy—with a Lima. See your nearby Lima distributor, or write Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio.

COMPARE QUALITY! No other machine gives you as much as LIMA!

1. Piston-type dirt seal rings and retainers in crawler rollers.
2. Moving parts are flame or induction hardened for longer life.
3. Main machinery is placed well back of center of rotation.
4. Anti-friction bearings at all important bearing points.
5. Big capacity drums and sheaves are easy on cables.
6. Torque converter (optional).
7. Wherever you are, you can depend on skilled service and nearby warehouse stocks of parts to keep your LIMA on the job continuously.

COMPARE and you'll specify LIMA for shovels (½ yd. to 6 yds.), cranes (to 110 tons) and draglines (variable). Smaller capacities available on rubber.

LIMA SHOVELS · CRANES · DRAGLINES · PULLSHOVELS

BALDWIN - LIMA - HAMILTON

Construction Equipment Division — LIMA WORKS

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DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

GET THE JOB DONE

Faster . . . at Lower Cost

Air lines, water lines, ventilating lines or tailings lines—wherever there's a job for pipe, you'll be time and money ahead with dependable Naylor Spiralweld.

Faster, easier handling is assured by this distinctive pipe because it is light in weight. Yet, you don't have to "baby" it because it is stronger and safer due to Naylor's exclusive lockseamed, spiralwelded structure.

Installation is further simplified and costs reduced when you use the one-piece Naylor Wedge-Lock coupling to connect Naylor lines.

Get the facts today on this proved, practical way to speed up pipe line operations in mining service. Ask for Bulletin No. 507.

NAYLOR PIPE

NAYLOR PIPE COMPANY

1237 East 92nd Street, Chicago 19, Illinois

Eastern U. S. and Foreign Sales Office: 350 Madison Avenue, New York 17, New York

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2, $900. Crude No. 3 will be purchased at $400 per short ton, but only when offered with the other grades in specified proportions.

United States fluorspar producers petitioned the Office of Defense Mobilization for assistance in curbing competitive imports under the "national security provision" contained in the Trade Agreements Act, but an O.D.M. hearing on the question has been cancelled at the request of the fluorspar industry pending effects of the Government purchasing program. The industry, however, has asked that its application under the Trade Agreements Act be kept in active status.

Soil Treatment Tests

EXPERIMENTS IN SOIL TREATMENT with minerals, conducted at the University of Illinois Brownstown Experiment Field, have tested the effects of limestone, phosphate, potash and nitrogen, used alone and in combination. The best results were obtained by using the materials in combination, as shown by the following table:

Material	Gross Return Per Dollar Spent for Minerals Used Alone	In Combination
Limestone	$9.33	$14.17
Superphosphate	2.56	6.16
Nitrogen	0.51	1.47
Potash	Loss	4.40

Increase Wallboard Output

UNION GYPSUM CO., Phoenix, Arizona, has stepped up production of wallboard from 300,000- to 400,000-sq. ft. per day this fall, L. B. Hakes, vice-president and general manager, reports.

The plant has two 600-ft. conveyors laid side by side, instead of a 1200-ft. continuous production line. One foreman can supervise the whole operation.

Pavement Yardage

AWARDS OF CONCRETE PAVEMENT for the month of October, 1956, and total awards for the first 10 months of 1956 were listed by the Portland Cement Association as follows:

	Sq. yd. awarded during: October, 1956	First 10 Mos.
Roads	3,524,290	34,683,308
Streets and alleys	2,824,557	29,087,722
Airports	953,350	9,499,820
Totals	7,302,197	73,270,850

Vermiculite Specifications

VERMICULITE INSTITUTE, Chicago, Ill., has prepared a revised edition of its booklet, "Standard Specifications for Vermiculite Plaster and for Vermiculite Acoustical Plastic," which in-

(Continued on page 58)

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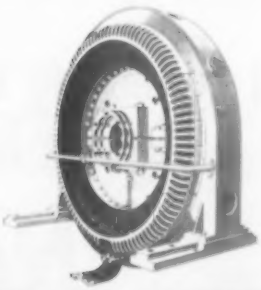


HOW GENERAL ELECTRIC SYNCHRONOUS MOTORS REDUCE MAINTENANCE COSTS

AFTER WINDING OPERATION, NEW POLYEX COILS WILL BE VARNISHED TO SEAL OUT MOISTURE AND CORROSIVE OR ABRASIVE MATERIALS

New Polyex* coils increase motor life

Polyex insulated coils, a recent General Electric development, will greatly increase the life expectancy of large motors and substantially reduce maintenance requirements. Prior to being introduced into the manufacture of G-E motors, Polyex coils were subjected to numerous exacting tests to prove insulation characteristics. These tests showed that Polyex coils have many times the physical strength of conventional coils. Throughout the tests Polyex insulation retained its superior characteristics—even after being baked for thousands of hours at 125 C.

Twice the resistance of other coils to operating temperature changes, moisture, contamination and mechanical damage is possible because Polyex coils are insulated with polyester films and fibres which are treated with the newest hydrocarbon resins. This all-dielectric insulating system is possible because the latest technological developments of chemistry and engineering are combined with the practical skills of more than a half century of coil manufacture.

Polyex insulated coils are but the most recent development in General Electric's continuing efforts to provide a maximum in motor life and reduce motor maintenance to a minimum. For more information about General Electric motors, contact your Apparatus Sales Office. A sales engineer will be glad to explain the many other advantages of G-E low-speed synchronous motors. Write for Bulletin GEA-5332. Address Section 775-6, General Electric Company, Schenectady 5, New York.

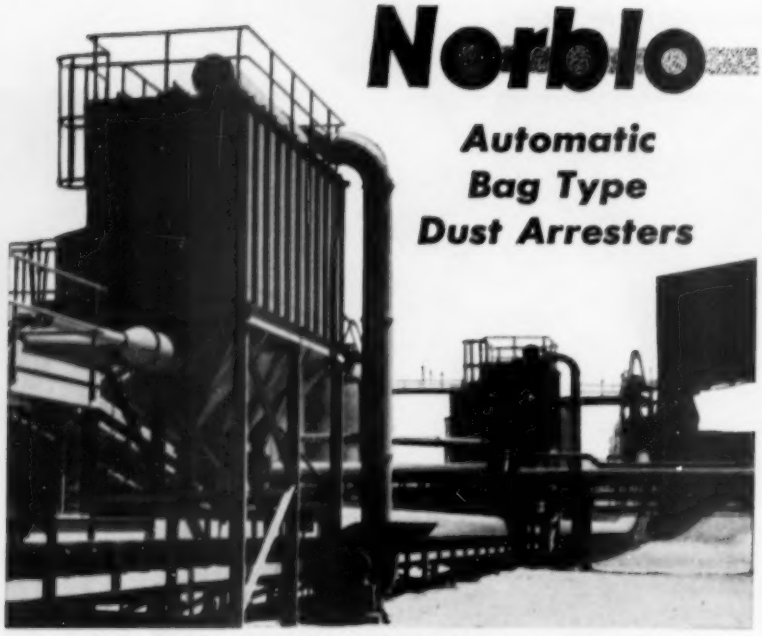
*Reg. Trade-mark of General Electric Co.

GENERAL ELECTRIC

Full dust collecting capacity always available from

Norblo

Automatic Bag Type Dust Arresters

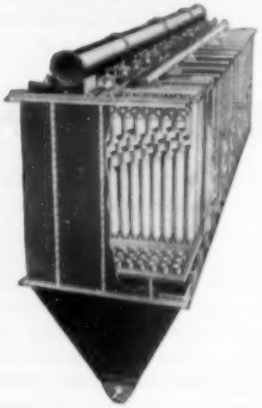


Norblo Dust Arresters at California Cement Corp. plant at Mojave, Cal.

Twenty-four hours a day is a gruelling grind, but Norblo equipment takes it. What's important to plant owners and operating staff is that full dust collecting efficiency holds level during the day and night punishment.

Norblo installations include a group of basic compartment units, each housing 78 cylindrical bags. Variable cyclic cleaning involves one compartment at a time, and that for only a few seconds. Engineered to the needs of each installation, there's ample capacity without waste, but without undue strain on the equipment. Easy maintenance is provided for.

Users of Norblo Equipment in cement plants, industrial plants of many types, and mining and smelting agree that complete satisfaction is assured when you install Norblo. Write for information—state your dust collection problem.



Norblo also builds centrifugal and hydraulic dust collectors, exhaust fans, cement air cooling systems, and portable type dust collectors.

The Northern Blower Company

6408 Barberton Ave., Cleveland 2, Ohio • OLympic 1-1300

Norblo ENGINEERED DUST COLLECTION SYSTEMS FOR ALL INDUSTRIES

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cludes new provisions of the American Standards Association specification for gypsum plastering.

Machine-applied vermiculite plaster, and the specification for vermiculite acoustical plastic also have been treated in the new edition. The 12 page booklet is available from Vermiculite Institute, 208 S. LaSalle St., Chicago 4, Ill.

Highway Highlights

● In a report to the Washington State Toll Bridge Authority, an engineering firm proposed that a bridge across Hood Canal be located between Termination Point and Salisbury Point. An additional $27 million bond issue, with the $10 million now available, would be required. The Authority voted to apply to the Army Engineers for a permit to build the bridge.

● The New Jersey legislature was asked by Governor Meyner for approval of double-decking of the George Washington Bridge, a project considered essential in connection with a proposed Bergen-Passaic expressway. The New York legislature has already authorized the project which would be handled by Port of New York Authority.

● GOVERNOR COLLINS OF FLORIDA has come out in favor of a state-long Florida toll-turnpike even though federal aid is available for free interstate highways. The State Road Department said the first funds made available for the interstate system will be spent in urban areas.

● Plans to seek a consulting engineer to determine whether to build a new structure linking the two Kansas Cities adjacent to the Intercity Viaduct or to expand the present structure were jointly announced by officials of the Kansas and Missouri state highway departments.

● Columbus, Ohio citizens have voted approval of an $11,200,000 bond issue for construction of expressways.

Opens Quarry

NELLO L. TEER CO., Durham, N.C., has opened a new rock quarry near Raleigh, N.C. Crushed rock from the 175-acre site will be shipped by rail and truck. An asphalt plant will be installed at the quarry about January 1. In addition to Mr. Teer, key personnel includes Rex H. Champion, sales manager, and R. Glenn Moore, operating manager.

(Continued on page 62)

Enter 1258 on Reader Card

CUT COSTS FROM BARREL TO BEARINGS...

Change lubrication methods from

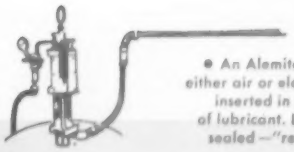
Backward to Forward!

ALEMITE "POWER HOUSE" BARREL PUMP

saves 95 man-hours for every 400-lb. drum of lubricant you use

Lubricating hundreds of bearings by slow, outgrown hand methods is a costly waste of time and money. A modern Alemite "Power House" Barrel Pump does the job much faster—at less cost. You save 95 man-hours for every 400-lb. drum of lubricant used. And because a completely sealed Alemite Barrel Pump system gives cleaner, more efficient lubrication, you make big savings right down the line. Savings in less down-time, and lower maintenance costs . . . in greater efficiency and output.

Air-powered Alemite Barrel Pumps fit directly into either a 400- or 120-lb. drum, send lubricant wherever it is needed anywhere in the plant. Or drum and pump can be placed on a dolly to go right to the machines. You get the big advantage of a completely sealed system. Lubricant reaches bearings "refinery clean"—no mess or waste.



• An Alemite Barrel Pump, either air or electric powered, is inserted in a fresh drum of lubricant. Lubricant is still sealed—"refinery fresh."

• Now the Barrel Pump supplies lubricant, through pipe, anywhere in the plant. Operator simply carries a hose and control valve to outlet, hooks it in, applies lubricant.

• Where piping of lubricant is not practical, power lubrication can be brought right to the machine by simply mounting drum and pump on a dolly.

ALEMITE

REG. U. S. PAT. OFF.

BARREL PUMPS

Products of STEWART-WARNER CORPORATION

STEWART SW WARNER

FREE! New Booklet:
"5 Plans for Better Lubrication"

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Chicago 14, Illinois

Please send me my FREE copy of "5 Plans for Better Lubrication."

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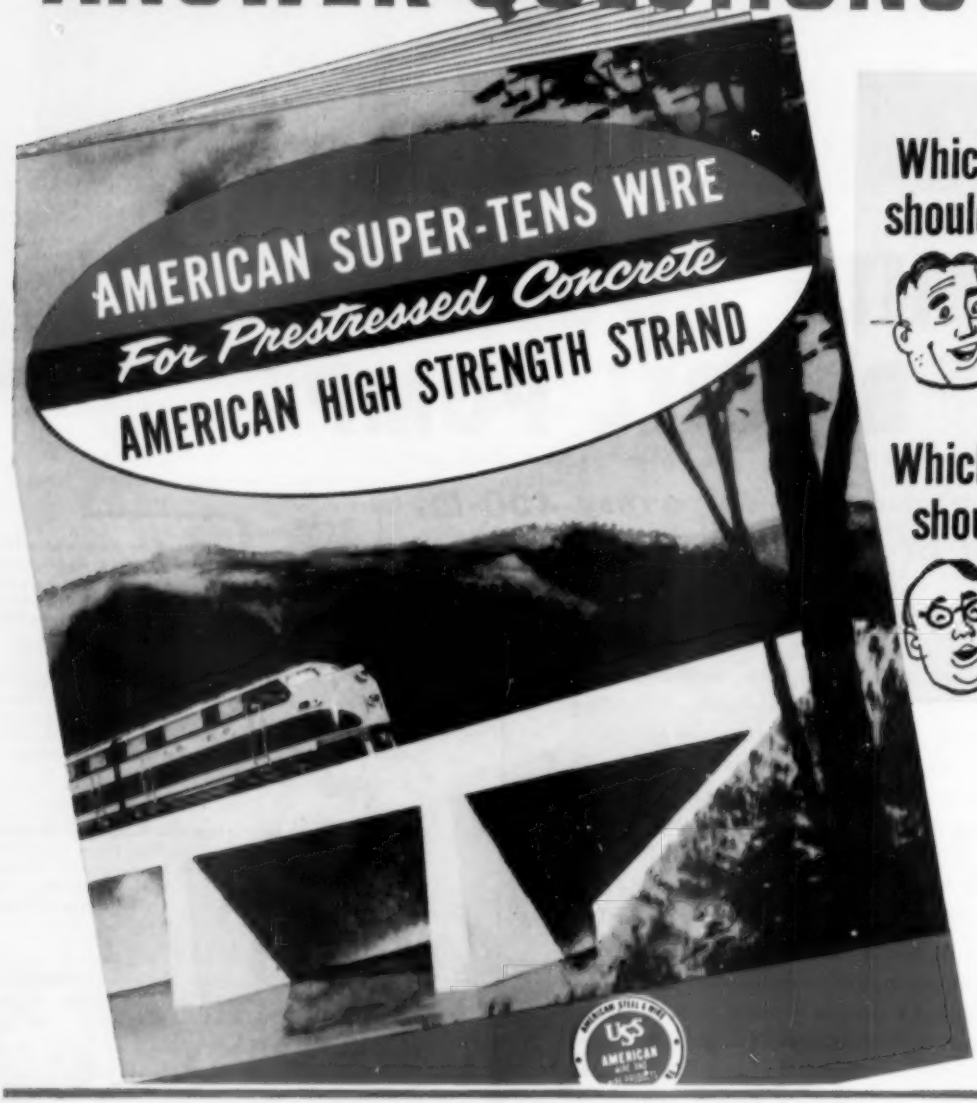
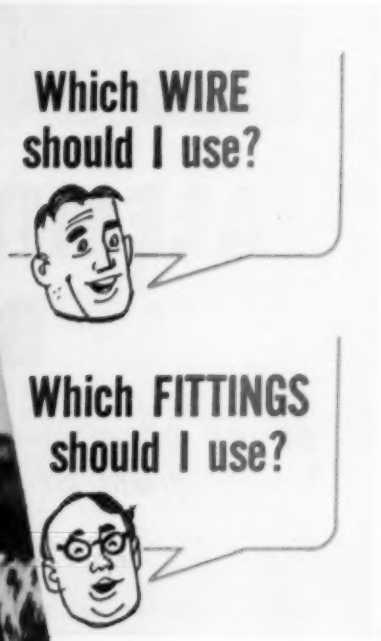
If you're using prestressed concrete...

THIS NEW BOOKLET ANSWER QUESTIONS LIKE





USS AMERICAN *Super-Tens* WIRE & HIGH

HELPS THESE

Which STRAND should I use?

What TENSION LOAD should I use?

SEND THIS COUPON FOR A FREE COPY. This new 16-page booklet describes the complete line of high strength wire, high strength stress-relieved strand, and end fittings manufactured by American Steel & Wire. It contains stress-strain curves, typical tensioning loads and breaking strengths for American Super-Tens Wire and American High Strength Strand—quality products that are especially made for use in prestressed concrete. Send for your copy.

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Please send your new descriptive booklet on American Super-Tens Wire and American High Strength Strand for prestressed concrete. Also send information on these other products of American Steel and Wire:

- ☐ American Welded Wire Fabric for Portland Cement Concrete
- ☐ American Welded Wire Fabric for Asphaltic Concrete
- ☐ American Welded Wire Fabric for Airport Runways
- ☐ American Road Joints
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STRENGTH STRAND

UNITED STATES STEEL

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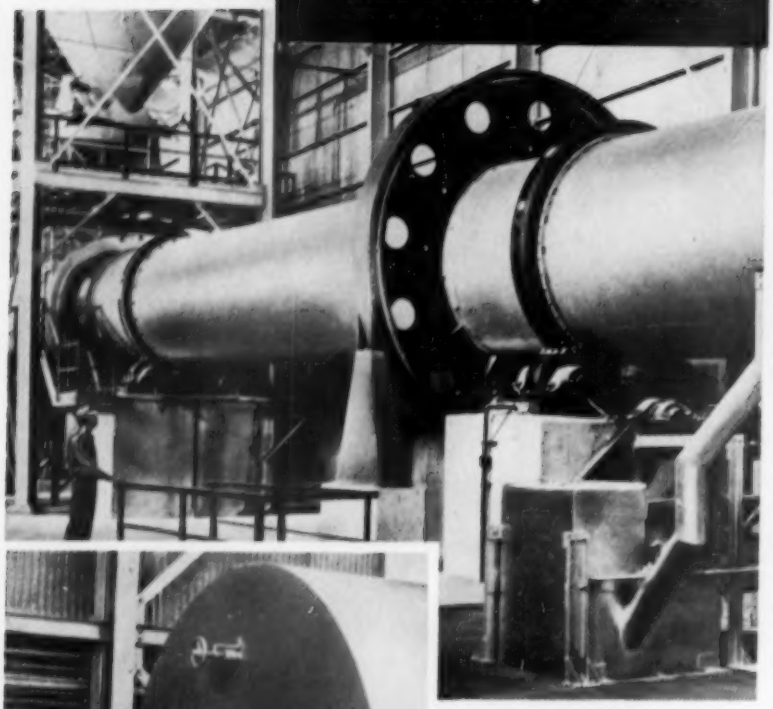
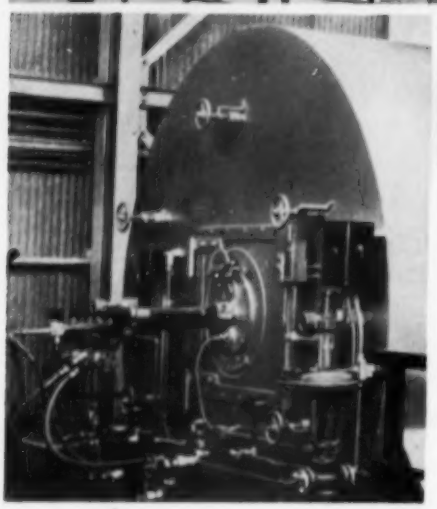
Dependable, Wide-Range Performance —with Peabody Air Heaters





Peabody Direct Fired Air Heaters have wide acceptance with rotary kiln designers and for a variety of products. A typical application at Virginia-Carolina Chemical Corp., Nichols, Florida, uses a Peabody Air Heater in conjunction with an Allis-Chalmers rotary kiln drier. The heater fires oil fuel at a maximum heat release of 110 million BTU/hr. to dry phosphate rock for fertilizer.

This installation, like every Peabody Air Heater, is job-engineered and custom-built to individual specifications. Years of experience and a wide variety of applications throughout the world, enable Peabody to offer assured performance for heat releases from 1 million to 300 million BTU/hr. and for furnace pressures from atmospheric to 10 or more atmospheres. Write for Bulletin 600-A.

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6-195

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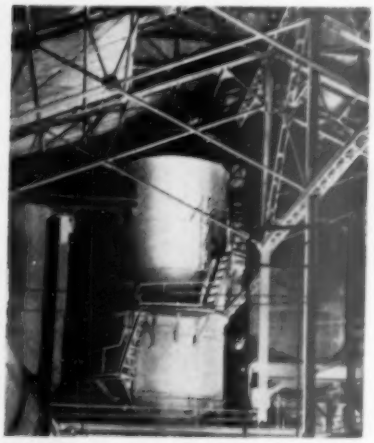
Install FluoSolids System

NEW ENGLAND LIME CO., Adams, Mass., is installing a second Dorrco FluoSolids system for producing 100 t.p.d. of lime. Replacing two old rotary kilns, the new unit is expected to go into operation early next year.



FluoSolids System will be supplemented by a second now being installed

Heart of the system is the FluoSolids Reactor, which consists of three preheating chambers, one calciner and a cooling chamber. Instruments and auxiliaries complete the system, which is said to produce lime with residual CO_2 content of less than 0.5 percent when calcining at 1860 deg. F.

Ohio Crushing Plant

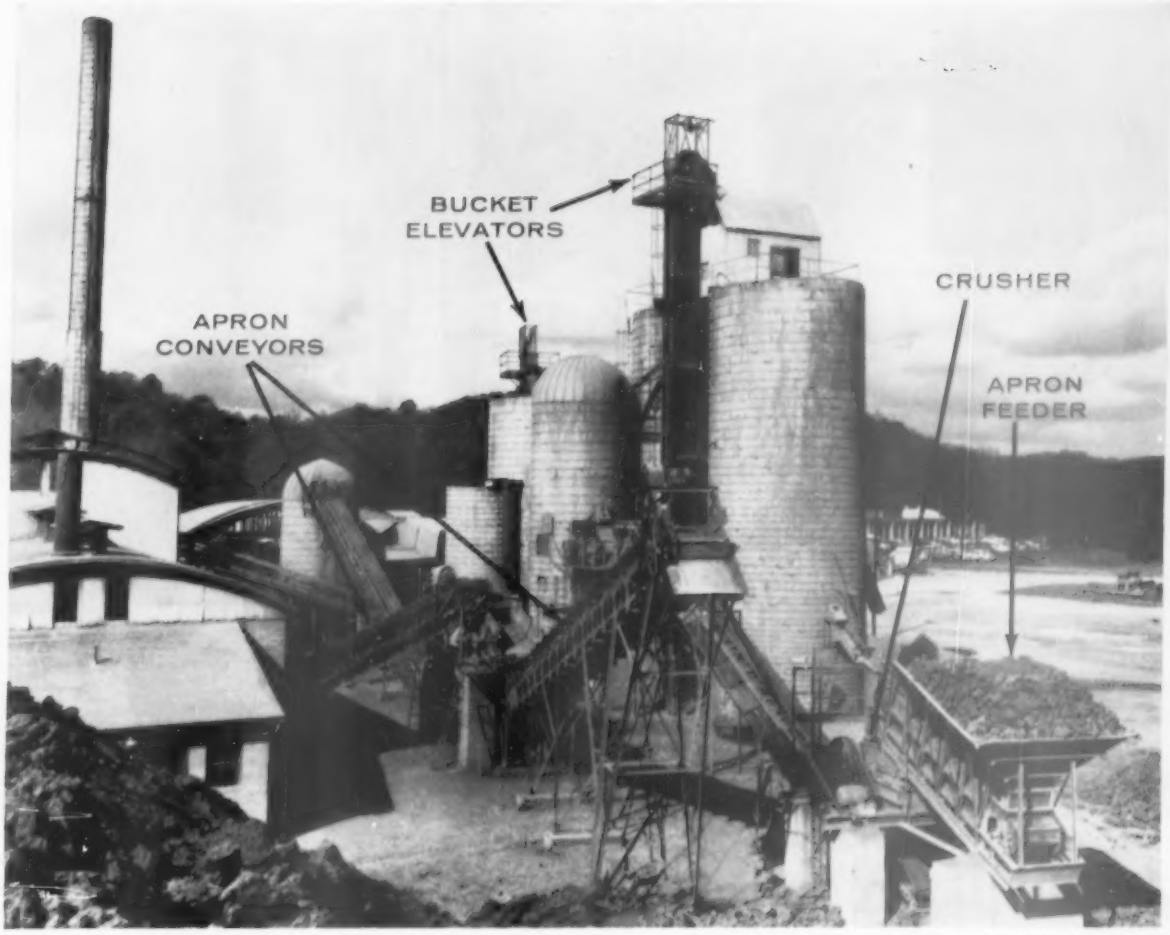
DAUGHERTY STONE CO., Glenford, Ohio, has built a $200,000 crushing plant near Maxville, Ohio, and went into production recently. Plant capacity is 1000 t.p.d. President of the firm is Rome Daugherty; vice-president, Charles Adams; secretary and general manager, Glen Hursey; and treasurer, Bernard Daugherty. The company has about 215 acres in the Maxville, Ohio, vicinity.

Basalt Buys Plant

BASALT ROCK CO., Napa, Calif., has purchased Russian River Sand and Gravel Co., Windsor, Calif., according to an announcement by A. G. Streblow, Basalt president. The purchase includes the plant, equipment and gravel deposits and will supplement Basalt's Healdsburg, Calif., sand and gravel operations.

•

NOVA SCOTIA GYPSUM OUTPUT in 1955 was recorded as 3,700,000 tons, reports M. G. Goudge of the provincial Department of Mines. Output for 1956 is expected to reach 4,000,000 tons.



Still other Jeffrey equipment, not visible here, is contributing to the high efficiency of this concrete products plant.

Flexible standard units are engineered by JEFFREY to meet your special requirements

Whether you're modernizing an existing system or planning an entirely new plant layout, let Jeffrey engineers assist you. They'll recommend the combination of conveying and processing equipment giving you highest production at lowest possible cost. Jeffrey's long line of standard units permits almost endless combinations to meet special requirements.

For this help, and for catalogs containing complete information on Jeffrey equipment, write to The Jeffrey Manufacturing Company, Columbus 16, Ohio. Replacement parts available from Jeffrey authorized distributor stocks.

In addition to the units named, the following Jeffrey equipment is widely used in the aggregate, stone, sand and gravel, clay, phosphate and sulphur rock industries:

Scraper Conveyors • Spiral Conveyors • Pulverizers • Power Scoops • Car Pullers • Vibrating Conveyors • Magnetic Separators • Stackers • Batchers • Chains • Feeders • Grizzlies • WAYTROLS • Jigs.

CONVEYING • PROCESSING • MINING EQUIPMENT • TRANSMISSION MACHINERY • CONTRACT MANUFACTURING

JEFFREY

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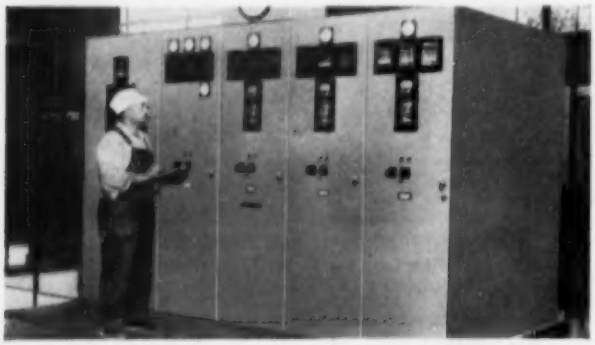
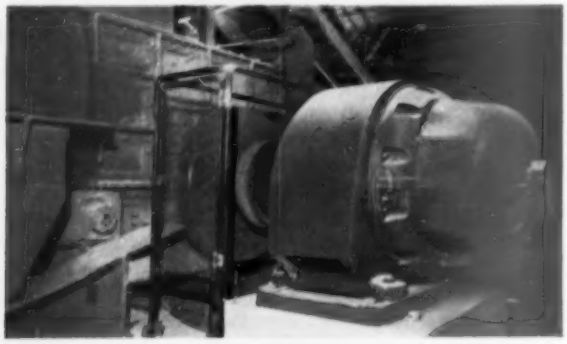
ENGINEERING REPORTS:

EXPANSION of Lone Star's Bonner Springs, Kans. wet-process plant has boosted cement output to 2,400,000 bbl/yr.

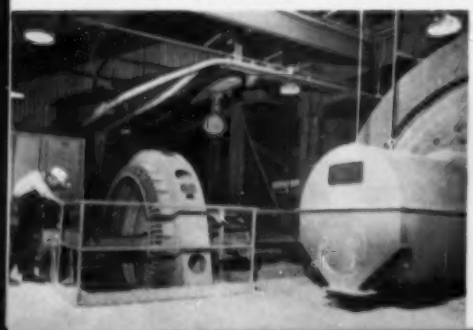
1 **PROTECTION** and switching for 2400-v circuits serving raw, finish, and kiln departments are provided by G-E vertical-lift, metal-clad switchgear with oilless Magne-blast circuit breakers rated 150,000-kva interrupting capacity.



2 **HEAVY-DUTY** service is performed by 300-hp wound-rotor motor driving hammer-mill for secondary crushing. Tri-Clad* design guards against physical damage, electrical breakdown, operating wear on tough duty operation.



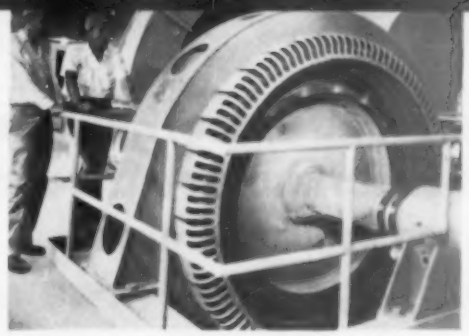
3 **HIGH-TORQUE** 600-hp synchronous motor powers raw mill. Limitamp* control and spotter (l.) start, protect motor, allow positioning of mill manholes.



4 **DC POWER** for new kiln drive is provided by G-E motor-generator set (r.), controlled by Limitamp* high-voltage starter (ctr.). Substation (l.) feeds kiln auxiliaries.

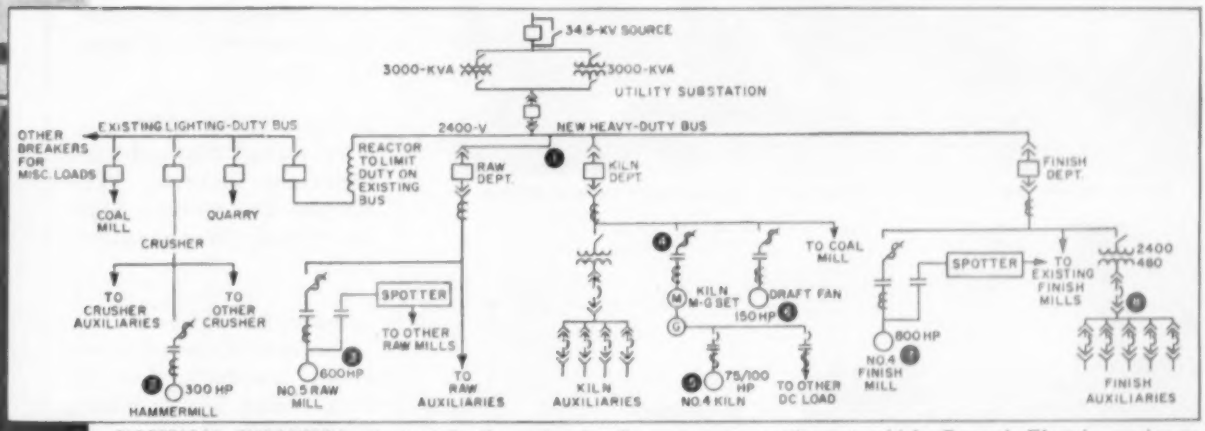
5 **ACCURATE,** uniform control of kiln rotation is provided by General Electric 75/100-hp, adjustable-speed, direct-current motor.

6 **STURDY** 150-hp General Electric Tri-Clad motor drives high-inertia kiln draft fan, gives highly-reliable service with almost no maintenance.



7 **TAILORED** to match speed-torque characteristics required with power system stiffness, 800-hp, 225-rpm synchronous motor drives new finish mill, helps assure reliable full-load starting.

8 **COMPACT** load-center substation serves finish auxiliaries, reduces feeder length.



ELECTRICAL EXPANSION of plant is shown in simplified one-line diagram. Numbers keyed to photos refer to new equipment which General Electric engineers helped co-ordinate into plant's new expanded system.

General Electric system helps Lone Star Cement expand Kansas plant's capacity by 50%

New system design at Bonner Springs fully utilized existing switchgear to cut expansion costs, minimize disruption of production

As part of a comprehensive $58-million-dollar company-wide expansion program to meet growing demand, Lone Star Cement Corp. recently completed enlargement of its Bonner Springs, Kansas, wet-process plant. Capacity was increased 50 per cent to 2,400,000 barrels annually. In expanding the electrical system of this plant to handle the increased load, General Electric equipment was chosen.

Working closely with Lone Star engineers and their consultants, General Electric application engineers, familiar with cement-plant electrical needs, closely matched new as well as existing mill-motor loads to power system requirements—in some cases shifting existing high-current loads to the heavy-duty system. They tailored auxiliary drives as well into the new electrical system. Existing light-duty switchgear was economically utilized by co-ordinating it with the new system. This saved cost of replacing it and allowed plant production to continue smoothly during most of expansion. Result: a fully integrated system embodying both the new and existing systems perfectly matched to provide reliability and flexibility at low over-all cost. Or, in the words of John Lape, plant supt., ". . . selection of the right equipment for the right job without exception."

In expanding or modernizing your cement or rock products plant, utilize the engineering services available to you by contacting your G-E Apparatus Sales Office early in planning stages. Meanwhile, write for Bulletin GEA-5984 on cement plant electrical modernization. General Electric Co., Sect. 658-18, Schenectady 5, N. Y.

*Reg. trade-mark of General Electric Co.

Engineered Electrical Systems for the Rock Products Industry

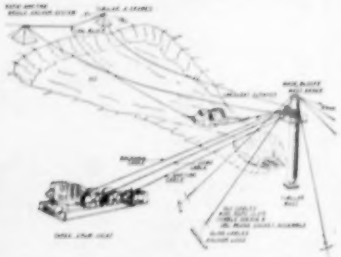
GENERAL ELECTRIC

Profitable Sand and Gravel Handling Starts with a Sauerman DragScraper

digging *and hauling to plant*

3-yd. DragScraper digs and hauls sand and gravel from dry pit to plant hopper at 300 fpm.

This 2-yd. DragScraper is dumping river gravel dug from 50 ft. of water into grizzly feeding conveyor to plant. See Sauerman News No. 147.



● **THE SAUERMAN METHOD**—*showing a basic DragScraper installation. Variations of this method are Sauerman engineered to handle the toughest digging jobs at the lowest cost per cu. yd.*

A Sauerman DragScraper handles the two basic steps of material flow—digging and hauling—in one continuous operation. No double handling is required. You cut labor costs in half—or even more—because a single machine, controlled by one man, replaces the multiple equipment required by other methods.

Profitable handling is further assured by a maintenance cost of only 1½ cents per cu. yd. for the average size Sauerman installation. On larger machines, the increased volume drops this cost still lower. You'll save money on power, too, by eliminating heavy machinery with limited handling-to-dead weight capacity. You pay only the cost of moving the actual digging tool—a Crescent DragScraper.

The best Sauerman Machine for your plant is governed by the nature of the deposit, location of material, depth and plant layout. DragScraper machines in sizes from ⅓ to 15 yds. provide direct delivery to feeder, scalper or crushers at the lowest cost per cu. yd.

Why not consult Sauerman engineers about your plant? Their recommendations will be based on almost fifty years of sand and gravel excavating machinery experience. Ask for Catalog A (DragScrapers).

SAUERMAN BROS., INC. 630 SO. 28th AVE. BELLWOOD, ILL. Cable: CABEX—Bellwood, Ill

Crescent Scrapers • Slackline and Tautline Cableways • Durolite Blocks

Enter 1260 on Reader Card

Coming Conventions

January 15-17, 1957—
National Crushed Stone Association, 40th Annual Convention, American Hotel, Miami Beach, Fla.

January 16-17, 1957—
Wisconsin Concrete Products Association, 36th Annual Convention, Plankinton Hotel, Milwaukee, Wis.

January 22-23, 1957—
National Agricultural Limestone Institute, 12th Annual Convention, Statler Hotel, Washington, D. C.

January 24, 1957—
National Crushed Limestone Institute, Annual Convention, Statler Hotel, Washington, D. C.

January 28-February 2, 1957—
American Road Builders' Association, Convention and Road Show, National Amphitheater, Chicago, Ill.

February 11-14, 1957—
National Sand and Gravel Association, 41st Annual Convention, Statler Hotel, Los Angeles, Calif.

February 11-14, 1957—
National Ready Mixed Concrete Association, 27th Annual Convention, Statler Hotel, Los Angeles, Calif.

February 25-28, 1957—
National Concrete Masonry Association, Annual Meeting and Exposition, Hotel Jefferson, St. Louis, Mo. Exhibit at Kiel Auditorium.

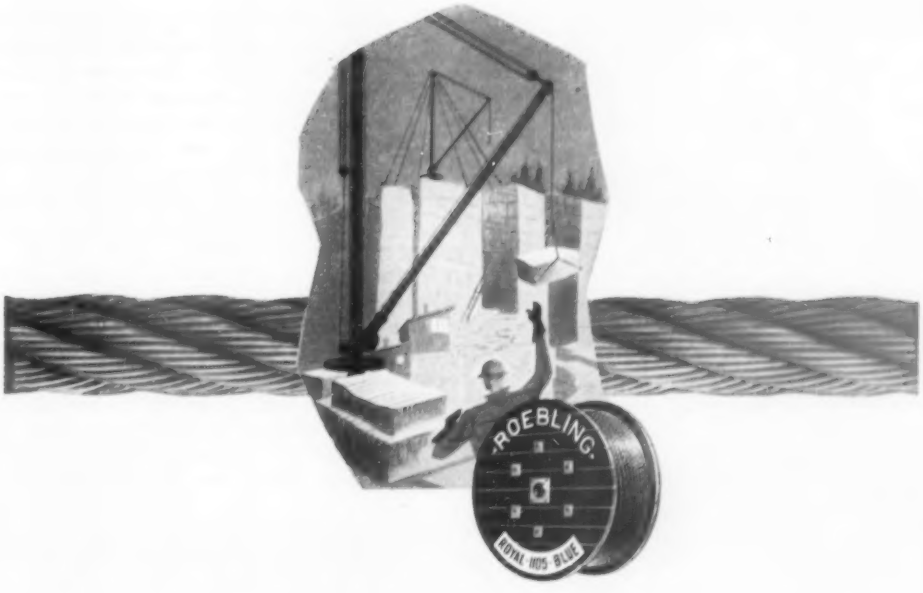
strong

Roebling's finest!

Royal Blue's extra strength

vastly increases...even doubles...

wire rope service life



John A. Roebling's Sons Corporation, Trenton 2, N. J., Subsidiary of The Colorado Fuel and Iron Corporation BRANCHES: ATLANTA, 934 AVON AVE. • BOSTON, 51 SLEEPER ST. • CHICAGO, 5525 W. ROOSEVELT RD. • CINCINNATI, 2340 GLENDALE-MILFORD RD., EVENDALE • CLEVELAND, 13225 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST. • DETROIT, 915 FISHER BLDG. • HOUSTON, 6216 NAVIGATION BLVD. • LOS ANGELES, 5340 E. HARBOR ST. • NEW YORK, 19 RECTOR ST. • ODESSA, TEXAS, 1920 E. 2ND ST. • PHILADELPHIA, 230 VINE ST. • PITTSBURGH, 1723 HENRY W. OLIVER BLDG. • SAN FRANCISCO, 1740 17TH ST. • SEATTLE, 900 1ST AVE. S. • TULSA, 321 N. CHEYENNE ST. • EXPORT SALES OFFICE, 19 RECTOR ST., NEW YORK 6.

Enter 1203 on Reader Card

International Drott

"beat-a-fleet" advantages go underground with NEW TD-9 mining Skid-Shovel

6 attachments for unmatched versatility!

Exclusive Drott Four-In-One is a dozer, bucket, clamshell, and bullclam, all in one.

95-inch Drott bull-dozer blade mounts directly onto Skid-Shovel lift arms. Easy to control!

Drott Bullangledozer blade ditches, slopes, dresses...can be an-gled to either side.

Rock fork constructed of super-strong alloy steel . . . withstands abrasion of loading hard, heavy minerals.

Third, extra valve of Drott Skid-Shovel controls rear-mounted heavy-duty scarifier.

Low profile, 3-prong grapple with top grab arm loads ties or mine props with full control.

You get exclusive wide work range, low equipment investment, and other "beat-a-fleet" advantages for underground mining—in the new International Drott TD-9 mining Skid-Shovel!

This new, big-capacity producer with 71 net engine hp, meets U.S. Bureau of Mines new safety standards for non-coal operations. It features the new stainless steel Drott short-coupled exhaust gas scrubber and cooler, with rear-mounted reserve water tank—and new exhaust gas diffuser. With this system, you get positive, *full 8-hour-shift* removal of harmful irritants, protection from noxious gases, and fire safety.

In addition, low, "trolley-clearing" profile (only 6′ tall) and standard length of the new machine provide unmatched full-load maneuverability, even in cramped quarters. You get all the famous Drott exclusives, too, like triple-power pry-action break-out, and shock-swallowing Hydro-Spring!

Prove the great versatility, handling ease and positive safety of this new underground mining TD-9 Drott Skid-Shovel—with your choice of buckets and attachments shown! See your International Drott Distributor for a demonstration.

International Harvester Company, 180 North Michigan Avenue, Chicago 1, Illinois
Drott Manufacturing Corp., 3126 South 27th Street, Milwaukee, 15, Wisconsin

INTERNATIONAL HARVESTER

INTERNATIONAL®
DROTT®

HINTS AND HELPS

PROFIT-MAKING IDEAS DEVELOPED BY OPERATING MEN

Drag Scraper Serves Surge Pile

AT A LARGE WESTERN SAND AND GRAVEL PLANT, two drag scrapers operate at two spaced locations, each delivering to an off-bearing belt conveyor. The head assembly of each conveyor is constructed as an inverted truss with the take-up pulley arranged as shown in the illustration. The two off-bearing belts deliver the pit-run material to a common gathering point which serves as a small surge pile. Under the surge pile is a belt conveyor that delivers to the plant.

Two converging belt conveyors bring material from drag scrapers, operating at two locations, to common surge pile

Lift Truck Aids Welding

NEW AND SOMETIMES NOVEL USES are being found for lift trucks every day. On the West Coast it is now quite common to see a lift truck being towed by a truck loaded with concrete block. The lift truck is used at the unloading site to handle the block with practically no breakage and for placing at points more convenient to the contractor.

In the illustration, the Towmotor lift truck is connected by drawbar to a portable Lincoln arc welder. It is available for heavy lifting. The truck frame carrying the arc welder also is equipped with oxygen and acetylene cylinders and a supply of Fleetwood rods for gas flame welding.

Both arc welding and gas-flame welding equipment on truck is drawn by lift truck

Hard Facing Rolls

AT THE LAST MEETING of the National Sand and Gravel Association, it was said that abrasion in the industry cost between $25,000,000 and $50,000,000 annually. It was brought out that several kinds of abrasion occurred; due to impact and also to a scratching action or to a combination of the two. One kind of hard facing metal might be better for a certain job than another. Selectivity based on observation and performance should be practiced.

One western producer found it advantageous to build up the rolls in a 40 x 24-in. Universal roll crusher which was used in the final crushing circuit. Stoodite hard surfacing welding rod was used. A G.E. welder mounted on a Ford truck has been found to be very effective in this work.

Looking down into roll crusher, the rolls of which have been hard-surfaced

Control Dust In Pit

IN A GOOD MANY LOCATIONS, particularly in southern California, anything that relates to dust, fumes and possibly even steam adds up to "smog" in the eyes of the public. Producers are becoming more alert to the problem, and have taken steps to meet it.

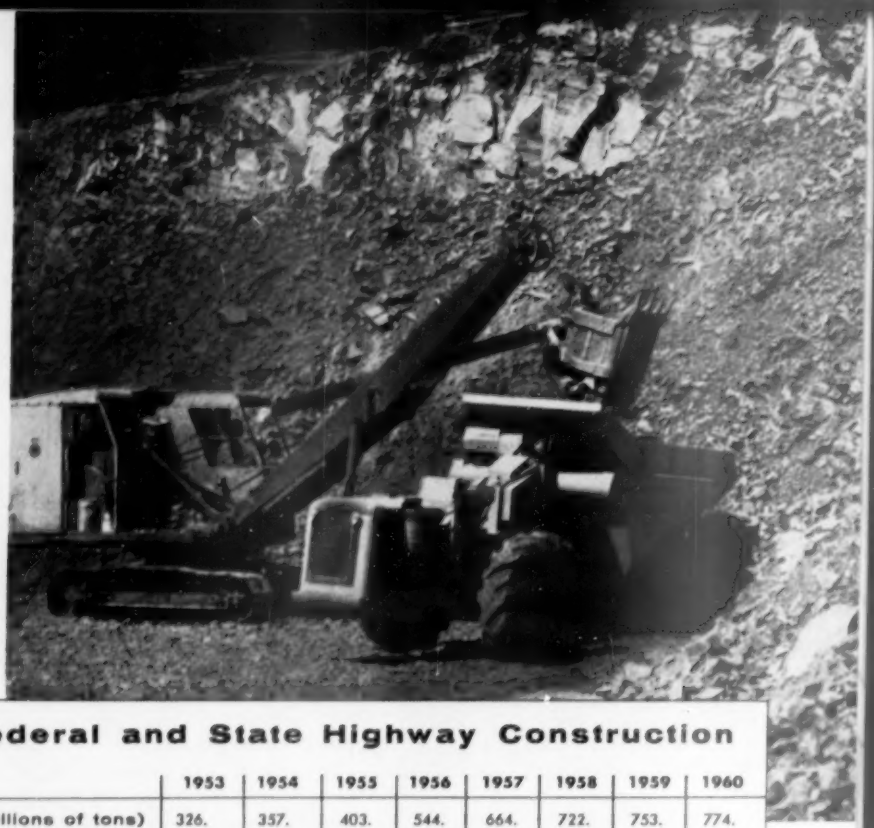
One sand and gravel producer in a suburban area but well away from other plants and homes wished to protect workmen as much as possible from dust. The water table in the sand and gravel pit was about a foot below the working floor. To form a water supply source, a small area was excavated to an 8-ft. depth, and a 3-in. pump was installed to pump water to sprays which wet down the area ahead of the shovel. The bank is wet down one day and the following day excavation is done. This arrangement not

(Continued on page 73)

Prevent dust in shovel operations by pumping water from pond to sprays to wet down area to be excavated

Is your equipment fleet ready

to supply next-year's roadbuilding?



Bill of materials—Federal and State Highway Construction

	1953	1954	1955	1956	1957	1958	1959	1960
SAND, GRAVEL, CRUSHED ROCK (Millions of tons)	326.	357.	403.	544.	664.	722.	753.	774.
CEMENT (Millions of barrels)	42.8	49.4	61.6	74.	94.5	102.9	107.4	110.5
REINFORCED CONCRETE PIPE (Millions of tons)	2.065	2.334	2.64	2.89	3.29	3.57	3.72	3.83
CLAY PIPE AND TILE (Thousands of tons)	38.	42.	47.	55.	67.	73.	76.	78.

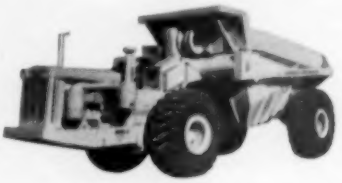
Data: U.S. Department of Commerce, Bureau of Public Roads, as published by Business Week

With 13 years of tremendously accelerated roadbuilding added to the continuing expansion in home, industrial, utility and other construction, isn't it time to again review your equipment inventory?

Since your production base is your pit supply of raw materials, that may be a good place to start. At the plant your conveyors, classifiers, crushers, and concentrators are well organized to produce efficiently as they deliver your production requirements.

In the pit you are more likely to have stand-by losses while one piece of equipment waits to fit into the operation of the next. Tractors are waiting for shovels, shovels for trucks, or trucks are waiting for shovels. Meanwhile costs mount.

Perhaps we can help you with this problem of synchronizing these independently operated pieces of equipment for bigger production at lower unit costs. We are specialists in earthmoving, have contributed much to the earthmoving efficiency of your contractor customers by development of special high-speed, rubber-tired tractors, hauler prime-movers, scrapers, rear-dumps, graders, and allied equipment for movement of all types of materials excavated from the earth.

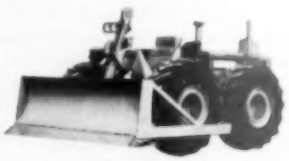


Rear-Dumps

These heavy-duty haulers, with king-pin connection between prime-mover and trailing dump body, are more maneuverable than rigid-frame dump trucks. Their flexible construction, plus cushioning effect of over-size, low-pressure, rock-grip tires, absorbs shock and strain. Simple dump mechanism eliminates all hydraulic elements. Rear-Dumps are available in 3 capacities; 11, 22 and 35 tons.

Adams Graders

Equally effective in pit clean-up or maintaining roads. Choice of five sizes: 60 to 150 hp; weight from 14,865 to 27,730 lbs. Heavy-duty models have 8 forward speeds (11 with optional "creeper" gears); 4 reverse speeds to match loads.



Tournatractor

Rubber-tired 208 hp tractor compares favorably in dozing work with crawler-tractors in its work range. Rig surpasses crawlers in mobility — can travel from job-to-job at speeds up to 17 mph — needs no assistance from trailers and special work crews. Tournatractor can do dozens of pushing or hauling jobs in and around the pit. With standard railroad coupler attached to rear, it's a SwitchTractor, spots railroad cars on your sidings.

Tournapulls

Self-propelled scrapers strip overburden, stockpile materials, fill washouts, build roads. Self-load, or may be push-loaded or shovel-loaded. Three sizes: 9, 18 and 25-cu. yd. capacity bowls; engines of 138, 208 and 293 hp electric controls.

SwitchMobile

If you need a switcher that isn't tied to tracks, can travel direct to new car-spotting work over tracks, roads, or fields, yet is designed and built to meet all ICC specifications for switchers, the SwitchMobile can speed work and save money for you.

Powered by a 208 hp diesel engine, SwitchMobile, with its big rubber tires gripping tie-ends has the tractive power of steel-wheel switcher twice its size. Engine power is converted into 36,000 ft-lbs of rimpull — enough to start 1,250 tons of rail freight rolling.

SwitchMobile is equally fast forward or reverse, with speeds up to 16 mph. Operator can face either way with 180° visibility. Controls swing in half-circle, are always in front of operator. Rig can work in either direction with rail-coupler and air-brake connections on both ends of the machine.

How Federal Highway Spending Will Step Up

The following table from *Business Week* shows increase, by states, in Federal Aid over next three years. Note that the increase to 90% in Federal participation on Interstate System Roads, will mean availability of additional state funds for use on the state and local highway system.

(Fiscal Years, Millions of Dollars)

STATE	1956	1957	1958	1959
Alabama	17.8	40.5	51.5	58.1
Arizona	10.6	23.6	29.7	33.4
Arkansas	12.9	29.3	37.3	42.1
California	47.1	110.9	142.6	161.2
Colorado	13.2	28.9	36.6	41.1
Connecticut	8.0	18.9	24.3	27.5
Delaware	4.0	10.9	14.2	16.3
Florida	14.5	33.6	42.9	48.4
Georgia	20.3	46.4	59.2	66.8
Idaho	8.7	20.1	25.5	28.8
Illinois	39.0	91.7	118.2	133.3
Indiana	21.0	48.2	61.7	69.6
Iowa	18.9	42.0	53.0	59.7
Kansas	17.8	38.4	48.2	54.2
Kentucky	15.7	36.7	47.1	53.2
Louisiana	13.8	32.3	41.6	46.9
Maine	6.7	15.5	20.1	22.6
Maryland	9.5	22.7	29.6	33.5
Massachusetts	16.3	39.9	52.1	59.0
Michigan	30.0	70.5	90.4	101.9
Minnesota	20.7	46.4	58.5	65.9
Mississippi	14.0	31.9	40.5	45.6
Missouri	24.4	55.0	69.7	78.5
Montana	13.5	29.9	37.9	42.6
Nebraska	14.0	30.3	38.5	43.3
Nevada	8.7	20.3	26.0	29.4
New Hampshire	4.2	11.0	14.4	16.5
New Jersey	16.8	41.2	53.4	60.4
New Mexico	11.3	25.0	31.6	35.5
New York	56.1	135.1	174.7	197.7
North Carolina	21.1	49.7	63.8	72.0
North Dakota	10.1	22.8	28.5	32.2
Ohio	35.1	82.9	106.9	120.5
Oklahoma	16.6	36.8	46.6	52.5
Oregon	12.9	28.3	35.7	40.2
Pennsylvania	42.0	101.7	132.2	149.4
Rhode Island	4.9	11.9	15.3	17.4
South Carolina	11.3	16.3	33.7	38.0
South Dakota	10.8	24.0	29.9	33.7
Tennessee	18.4	42.3	54.3	61.2
Texas	52.4	117.5	149.0	167.8
Utah	8.4	19.2	24.7	27.9
Vermont	3.9	10.7	14.1	16.1
Virginia	16.8	39.4	50.8	57.4
Washington	14.1	32.1	41.1	46.3
West Virginia	9.6	22.8	29.6	33.3
Wisconsin	20.0	45.6	58.2	65.4
Wyoming	8.5	20.1	25.9	29.3
Hawaii	3.2	3.7	3.9	4.0
District of Columbia	5.1	12.2	15.7	17.7
Puerto Rico	4.8	5.7	5.9	6.2
Alaska	0	1.9	13.2	13.5

Adams, SwitchMobile—Trademark, Tournapull, Tournatractor—Trademark Reg. U.S. Pat. Off. G-1199-Q

LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

ARBA See you at the ROAD SHOW • Chicago • January 28-February 2, 1957

1. *Cooler pressure control*
2. *Firing temperature control*
3. *Miscellaneous temperature recorder*
4. *Cooler temperature control*
5. *Backend temperature control*
6. *Monitor system*
7. *Oxygen analyzer recorder*
8. *Fuel flow recorder*

Here's kiln control that works

Now, at the Baton Rouge plant of the Ideal Cement Company, this complete *system engineered* instrument and control cubicle is on 'round-the-clock duty.

Designed and built by L&N specialists, this control system applies modern concepts of instrumentation and standardized production techniques to Ideal's wet process kiln.

Here are some of the highlights of Ideal's instrument and control system that can benefit *your* plants.

1. Cooler pressure —Cooler draft automatically is held constant by L&N pressure controller.

2. Firing temperature — Control of clinker firing temperature is achieved with Speedomax® G recorder-controller from Rayotube® detector sighting *directly* on moving product.

3. Miscellaneous temperatures — Temperatures at 5 separate points within the kiln system are clearly charted by fast-acting Speedomax G.

4. Cooler temperature — Combustion air temperature is automatically stabilized by 3-action electric control and Speedomax G.

5. Backend temperature — Automatic temperature regulation is assured by 3-action electric control and Speedomax G.

6. Monitor system—Unique L&N *system engineered* design provides continuous records of operating performance of 10 important variables in the system.

Oxygen analyzer and fuel flow recorder complete the system.

Planning new kilns? Plant modernization programs? In a new 16 page illustrated folder, L&N shows you how complete system engineering can be applied to your rotary kiln operation. Call your L&N office or write directly to 4975 Stenton Ave., Phila. 44, Pa. Ask for Folder N-0720(1), "Modern Practices in Rotary Kiln Instrumentation."

LEEDS NORTHRUP
Instruments
Automatic Controls • Furnaces

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only has materially reduced dust in the pit but also helps to keep down dust in the plant.

Stone Box Saves Belts

IN THE ILLUSTRATION is shown how a crushed stone producer prevented excessive impact on belt conveyors by using a stone box chute arrangement.

Stone box chute which prevents excessive impact on belt

Stone discharged from a primary crusher drops to the stone box chute which provides stone upon stone contact before the material reaches the 24-in. conveyor belt. It will also be noted that the chute arrangement provides for a framework supporting skirts above the belt to prevent stone from falling off belts as it drops from the stone box chute.

Laboratory Screen

ALTHOUGH A ROL-TAP SCREEN was available for screening finer sizes, a sand and gravel producer wanted another laboratory screen to handle coarser material and decided to make one.

Wood frame screens can be nested over the vibrating mechanism. The illustration shows a single screen in place. At one end of the unit is a small drive motor and an eccentric to give the required motion for screening. It operates at about 200 strokes per minute. The screen unit rides on four short arms that are free to oscillate back and forth.

Laboratory shaker screen

Rubber to Resist Abrasion

CONVEYING SYSTEMS, chutes, and screens are subject to abrasive pounding from sand and gravel and crushed stone, and producers have found it desirable to check every point where excessive wear may be expected. B. Perini and Sons, Inc., Framingham, Mass., made such a study in its sand and gravel plant supplying materials for the Barnhart Island Powerhouse project on the International St. Lawrence Seaway development. Armorite, a B. F. Goodrich product, was used very effectively at points of excessive wear. It comes in sheets, ½, ¾, 1½, 3, and 6-in. thicknesses.

According to Harry D. Evans, general superintendent of B. Perini and Sons, Inc., these soft but tough sheets of rubber help to avoid costly breakdowns and extend the life of belting and screens. Below are listed some of its uses.

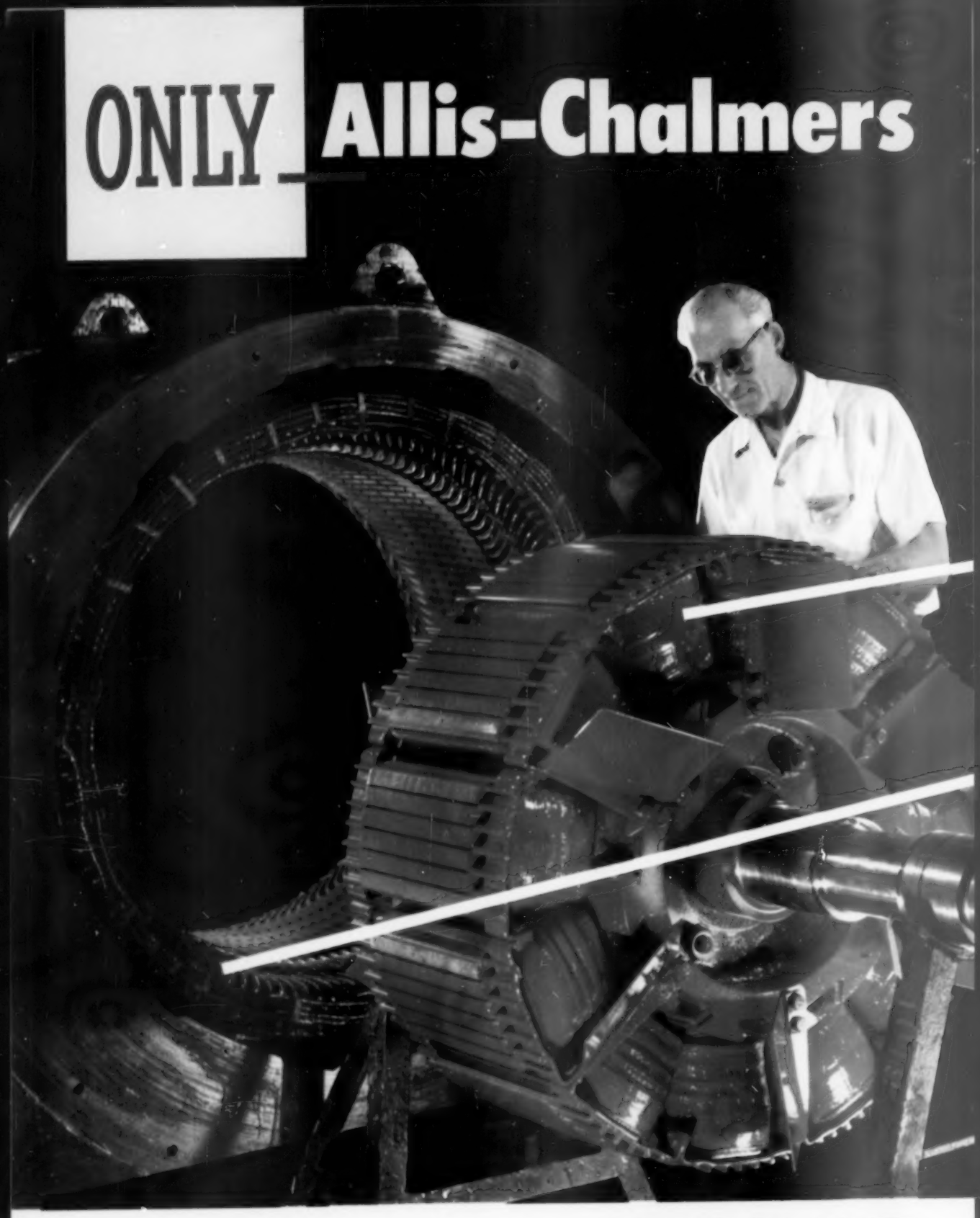
At the transfer point where aggregate carried from the storage pile is emptied into a chute and discharged to another belt, the sheets are used as skirting to help center the load on the belt and to take the impact and abrasive wear of material discharged onto the belt. Two lengths, 15 ft. long, 8 in. wide, and ½ in. thick, were used.

At this plant, aggregate is brought in by rail and discharged into a metal hopper from which it is discharged onto a stacker belt and carried to the storage stockpile. Armorite 1162 is used as a liner over the metal to take impact and abrasion.

In the screening section at the top of the batch plant, a piece of this rubber, 8 ft. long, 48 in. wide and ½ in. thick, protects the screen cloth. Laid directly below the hopper, the rubber sheet absorbs the abrasion at the point of impact with the screen surface, preventing excessive wear on screen wire. Screen cloth replacement has been cut down very appreciably.

Sections of this wear-resistant rubber also have been used as belt scrapers.

Showing how rubber sheets take abrasive wear on conveyor belting, chutes, and screens. (1) Rubber skirting at transfer point where aggregate is emptied into chute and discharged to belt. (2) Metal hopper receiving aggregate from bottom-dump freight cars is protected with rubber sheets. (3) Screen wire protected at point of impact from falling aggregate. (4) Rubber scrapers on return side of belt wear longer than steel



ALLIS-

MOTORS are "double protected"

New Integrated Field Coils Plus *Silco-Flex* Stator Insulation Provide Superior Motor Protection . . . Under Any Operating Conditions

1

Integrated Field Coils are bonded in heat-stabilized resins, enclosed in a resin-impregnated sheath of oriented glass fibers and bond-locked on the pole structure . . . dimensionally stable to withstand heating and thermal shock, vibration and fatigue at elevated temperatures . . . sealed throughout against atmospheric contaminants and fully protected against destructive forces.

2

***Silco-Flex* Insulation** provides a homogeneous, void-free insulating wall of silicone rubber on stator coils. It is unexcelled in life and thermal stability at high temperatures . . . resistant to most chemicals, water, weather . . . outstanding in flexibility and resilience . . . able to withstand abrasion and corona . . . resistant to physical and mechanical forces.

Exclusive Allis-Chalmers "double protection" is available on large electrical machines with operating temperatures through Class B range.

Silco-Flex is an Allis-Chalmers trademark

For more information on these quality insulation systems contact your nearby A-C office, or write Allis-Chalmers, Power Equipment Division, Milwaukee 1, Wisconsin for Integrated Field Coil Bulletin 05R8525 and *Silco-Flex* Insulation Bulletin 05R8341.

Allis-Chalmers "Double Protection" with integrated field coils and Silco-Flex stator coil insulation, adapts this 600-hp, 2300-volt, 600-rpm synchronous motor to the most severe operating conditions.

A-C CHALMERS

ALLIS-CHALMERS

A-5221

Never-say-die dependability . . .
proved on the Alcan Highway!

The Alcan test run was supervised and certified by the AAA.

NEW TASK·FORCE 57 CHEVROLET TRUCKS

Six new '57 Chevy trucks tamed the rugged Alcan in one round-the-clock sprint. They covered the grueling run (normally a 72-hour trip) in less than 45 hours to prove their durability!

They took everything the truck-killing Alcan could dish out—and not a single unit dropped out or turned back due to mechanical failure! They turned in top scores for performance and economy, too! Look over the Alcan Highway Champs at your Chevrolet dealer's. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

NO JOB TOO TOUGH FOR THE ALCAN CHAMPS!

You get Alcan-proved dependability in whatever light- or medium-duty model you choose. Put a new Chevy to work for you and take advantage of its extra stamina, its time- and money-saving ways!

PROVED ON THE ALCAN HIGHWAY . . . CHAMPS OF EVERY WEIGHT CLASS! CHEVROLET

Enter 1231 on Reader Card

NEW MACHINERY

Tractor Shovels

THE FRANK G. HOUGH CO., 705 Seventh Ave., Libertyville, Ill., announces two new four-wheel-drive, pneumatic-tired Payloader tractor-shovels: Model HH with a capacity of 1¾ cu. yd., 1⅓ cu. yd. struck, and Model HU with a capacity of 1⅓ cu. yd., 1 cu. yd. struck.

Both are equipped with Paylomatic power-shift transmission, power steering, power brakes, power-transfer differentials and planetary axles. Additional features are a boom-arm design which permits "pry-out" of the load and the bucket action which provides 40-deg. tip-back of the load at ground level. A hydraulic system load-shock-absorber permits fast movement over rough terrain.

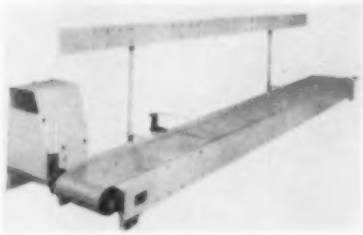
Enter 200 on Reader Card

Heat Exchanger

WESTERN PRECIPITATION CORP., 1016 W. 9th Street, Los Angeles 15, Calif., has designed the Holo-Flite processor, a heat exchanger applicable for cooling cement, sand, gypsum, etc. The screw conveyor has helical, hollow flights through which the heat transfer agent is circulated. Standard construction consists of two or more pairs of "Syncro-Screws," nested and intermeshed as twins, quads, etc., according to tonnage, space limitations and time of retention. Operating pressures are up to 150 p.s.i.g., and screw speed is generally maintained between 1 and 20 r.p.m.

The trough is built to suit the diameter, length and number of Syncro-Screws. A processor may consist of one or more tiers, placed one above the other or strung horizontally. A variety of drive arrangements is available, generally utilizing V-belt drive from motor to speed reducer, plus chain and sprocket from gear reducer to Holo-Flite for small units and direct universal joint coupling drive from timing gear box to screws for large units.

Enter 201 on Reader Card



Telescopic Bag Conveyor

RICHARDSON SCALE CO., Van Houten Ave., Clifton, N. J., announces a new flat belt bag conveyor, telescopic in design to provide a choice of lengths. Two sizes of motors can be supplied as optional equipment— a ¾-hp. non-gearhead motor for belt speeds from 25- to 42-f.p.m., and a 1-hp. motor for belt speeds from 40- to 60-f.p.m.

The frame is constructed in two parts, telescoping for a minimum conveying length of 7 ft. Full length is 12 ft. Standard equipment includes the frame, pulleys, speed reducer and belt, bearings and rear pulley takeup. A bag rest is available for guiding filled bags as they travel along the conveyor, as is a bag stop limit switch for halting the bag at a bag sewing machine.

Enter 202 on Reader Card

Hydraulic Shovel

GECO INC., 5701 Colorado Blvd., Denver, Colo. is now manufacturing for the American market the Yumbo Hydraulic Shovel, developed seven years ago in Italy. The Yumbo is an all-purpose tool with the following attachments: ¼-cu. yd. backhoe, ⅝-cu. yd. front dump bucket, ⅜-cu. yd. rock bucket, ⅝-cu. yd. gravel bucket, ½-cu. yd. clamshell, and 6500-lb. crane hook. Its principal features are a precision-built ball bearing turntable and heavy duty hydraulic system. The turntable consists of lower and upper races, integral gear and center race, and 168 ball bearings.

The heavy-duty hydraulic system includes three double acting cylinders, one hydraulic motor, four two-way control valves and a hydraulic pump. The unit requires 30 hp., and is equipped with an International U169 gasoline engine or equivalent.

Enter 203 on Reader Card

Resistor Protection

METALLURGICAL PRODUCTS DEPT., General Electric Co., Detroit 32, Mich., announces a new Thyrite discharge varistor assembly mounted for direct installation in electrical circuits. Said to be the first commercial offering of a voltage sensitive nonlinear resistor of its type, the unit is designed for use in protecting motors, generators, lifting magnets, magnetic chucks, solenoids, relays, large coils etc. against high inductive surges resulting from sudden interruption of inductive currents.

The type 9RV6A assemblies are manufactured in ready-mounted groups of 1 to 4 varistors. Each varistor disk is 6 in. dia. and ⅜-in. thick, with a 1-in. central mounting hole. Disks are bracket-mounted on a horizontal insulated bolt with a spring lock washer to provide contact pressure.

(Continued on page 158)

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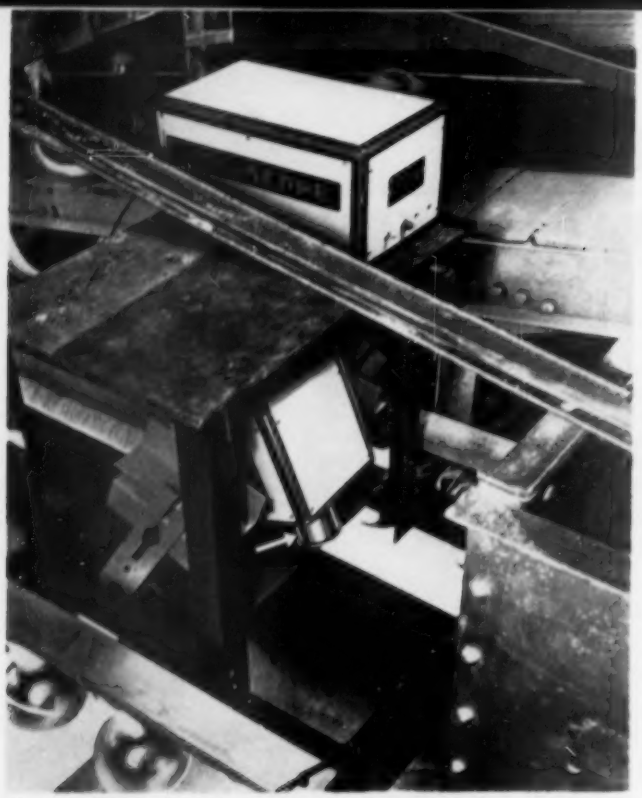


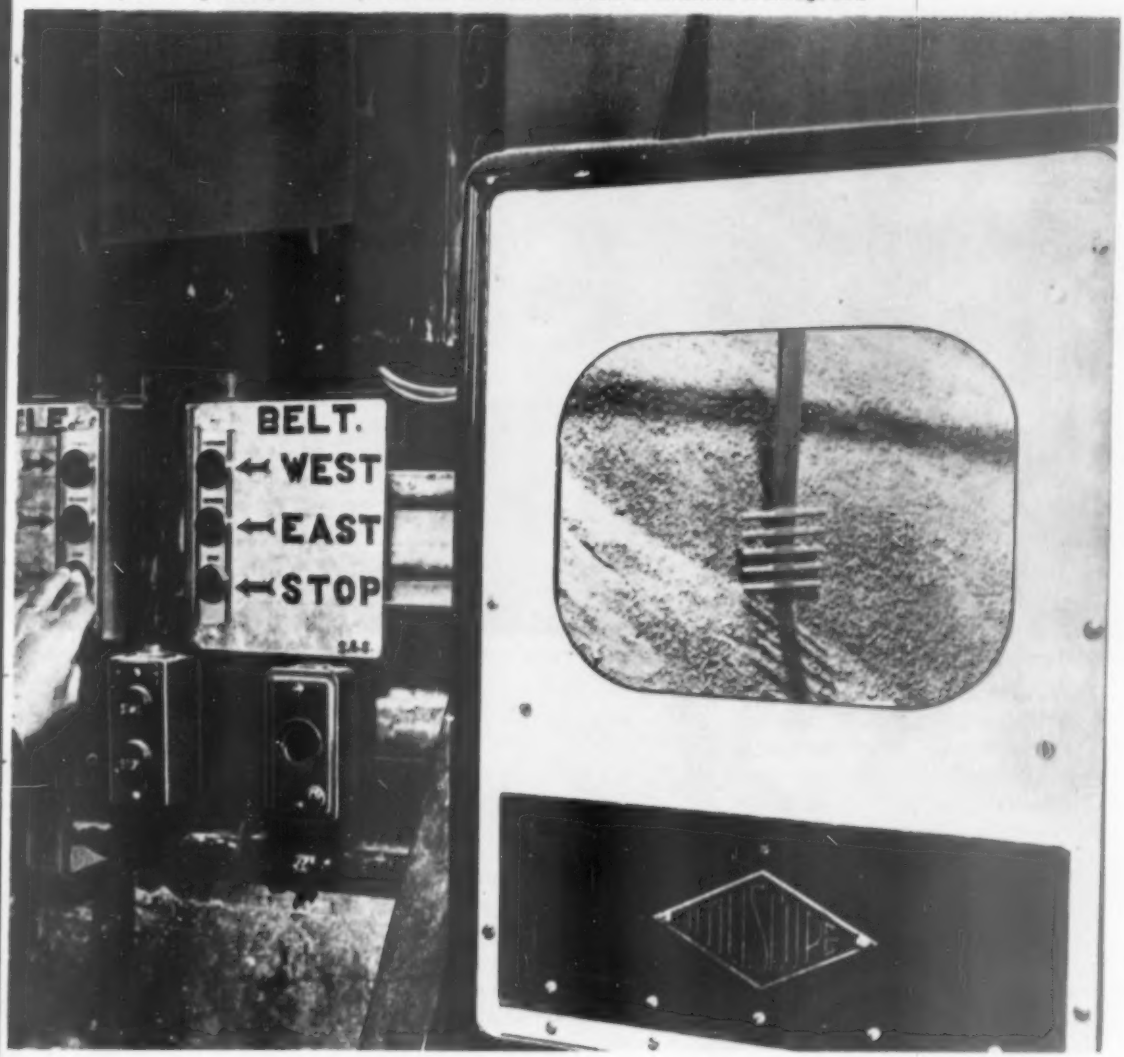
Arrow points to lens of camera which is directed down to level of crushed limestone in storage bins. Power units shown on platform above camera. Mounted on opposite end of the shuttle conveyor above bins are similar units

Visual Remote Control in Crushing Limestone and Storing Products Has Proved Its Worth

Television Saves In the Minerals

By LEO WALTER

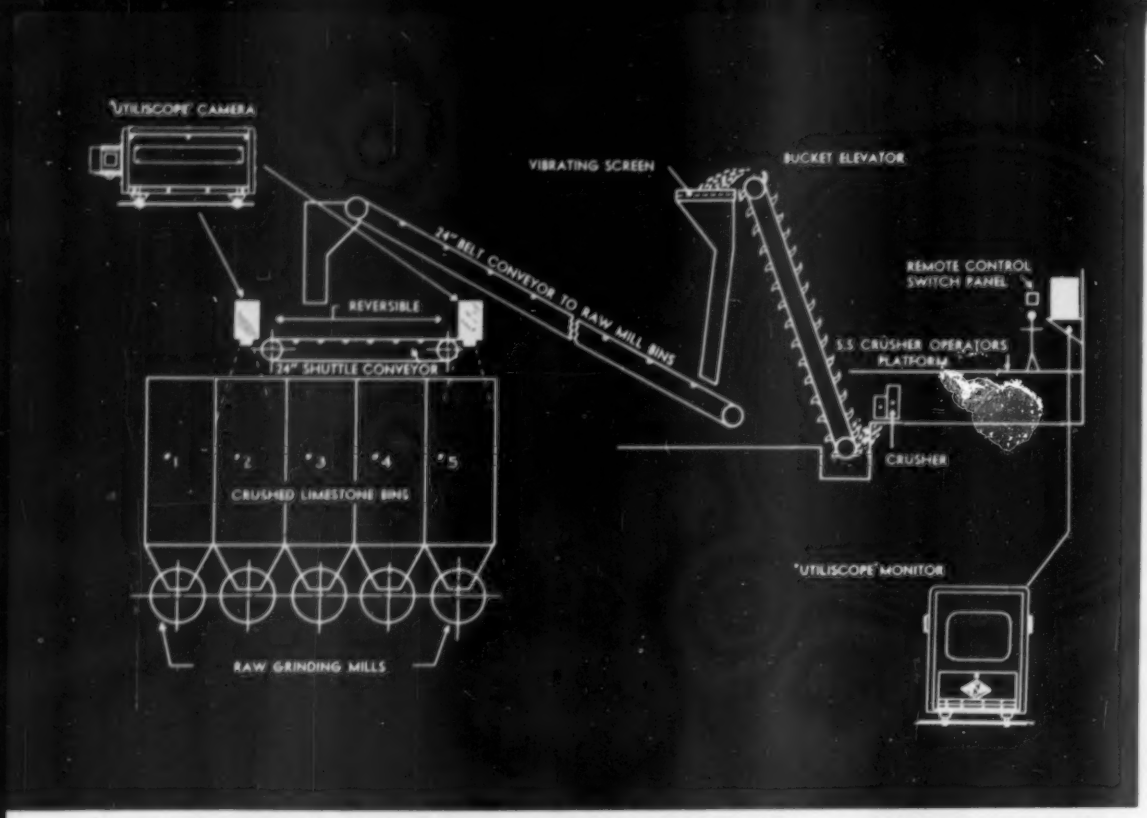
By watching screen, crusher operator also controls movement of limestone to storage bins



Money Industry

WIRED CIRCUIT TELEVISION consisting of a special lightweight small-size camera, a power-pack unit, and a monitor screen in its simplest form is being used in many branches of industry. Although a number of television systems are in use in rock products industries, the surface hasn't even been scratched in this exciting new medium.

An outstanding example of what can be done in this field is on display right now at the quarries of the Columbia Cement Division of the Pittsburgh Plate Glass Co. near Zanesville, Ohio. Here two Utiliscope cameras—manufactured by the Diamond Power Specialties Corp., a neighbor of Columbia Cement in Lancaster — enables a single worker to perform effectively and surely the work



Schematic diagram showing location of two cameras and one monitor. By throwing a switch the picture from either camera is available on the single monitor

that two men without television accomplished with a great deal less certainty.

This pioneer industrial TV application in the rock products field came about in 1953, when W. K. Farst—Columbia's general manager—reading an article about I.T.V., became interested in applying it to his raw materials storage problems, and discussed the situation one day with nearby Diamond Power officials. Result: a television installation in September 1953 at the Columbia plant.

Now, after three years of operation, Columbia officials are happier than ever with television. Operating costs have been reduced, and mechanical troubles have been held to a minimum.

"Maintenance," says Mr. Farst, "has been a pleasant surprise. The television has required only a moderate amount of maintenance—about what we normally expect from any electronic equipment. We were also apprehensive of dust and dirt clogging the equipment. We thought we would need filtered air, but we tried the installation without this added expense and found that it works fine."

The Columbia setup—which includes two cameras and a monitor 500 ft. away—enables centralization of control and also keeps the workers away from dust. (See diagram.) A switch enables the crusher operator to see the picture from either camera on his monitor. Thus a single operator not only controls the preparation of the crushed limestone but also supervises the remote storage of material in any of five bins in the raw mill. With I.T.V. cameras which can peek around corners, mounted at each end of a reversible shuttle conveyor, the operator can clearly see the bin level and can move the camera eye to the bin which is being filled. A worker who formerly had little to do but prevent spillage of material by manually moving a tripper on a belt conveyor has been released for more productive work.

Industrial television got its start in 1945 when four small television cameras were installed in the New York Edison Co.'s plant for scanning water level gauges near the top of four large steam boilers. Pictures of these gauges were reproduced on a monitor screen in a supervisor's office. Many more applications came speedily, and five manufacturers got right down to the problem of producing a relatively simple television transmission system using a wired circuit which could be adapted to a

Watching progress of material tests on television monitor

Industrial T-V Saves Money

whole variety of industrial needs. The field was especially desirable for material handling, road and railroad transport, and operations in quarrying, cement manufacture, sand production and many more applications in the rock products industry. Wired television is only the first stage in micro-wave links; i.e., wireless video transmission as an addition to the well-established radio-telephone now used by many companies—especially in controlling fleets of trucks.

Today's industrial television has its economic limits. By using a coaxial cable between viewing and reproducing unit, pictures can be transmitted directly over distances which vary from about 1000 ft. to 4000 ft. according to the scanning method employed. For longer distances intermediate repeater amplifiers could be used, but there comes a limit when "micro-wave links," i.e., wireless transmission, would be necessary.

Here, a little background on the television process might be helpful. The principle of television is breaking-down a picture into a single-channel electrical signal. This is carried out by means of a moving light-sensitive spot, which is made to traverse the image. "Scanning" causes an electrical output signal to be produced which is proportional in magnitude or wave form to the instantaneous intensity of illumination which it "sees".

At the monitor or viewing unit the picture space is scanned by a spot of light whose movements are closely synchronized with those of the scanning spot in the transmitting camera. The brightness of the light spot is controlled by the vision signal received from the camera. Moving in traverse over the monitor screen, areas of light and shade are produced in rapid succession. In most camera electronic tubes, the scene to be televised is focussed optically by a lens onto a photo-sensitive screen. The resulting image is then scanned by a beam of electrons. In the display tube within a monitor a narrow beam of electrons is made to scan a screen. This latter is specially coated with fluorescent material which glows where the beam strikes it. The intensity of the scanning electron beam is modulated by the signal received from the camera output. Thus the brightness of the spot is varied and reproduces the final image on the monitor screen.

The possible applications of industrial TV are almost limitless. For example, in quarrying and other operations where blasting explosions take place, the use of a television camera can disclose whether explosives are correctly applied. The camera can be exposed to dangerous positions where a human observer has to keep well away. A coal company is using television equipment to safeguard a conveyor chuting material into a coal tipple washing plant. A steel company is using the

Please turn to page 126

Are You Fumbling Management

Salaried Workers Have Been Too Long Overlooked. Here's a Test to See How Your Organization Measures Up in This Important Area.

PERSONNEL RELATIONS has become an important and respected member of most organizations in the rock products field. Because hourly-scale workers predominate by a large margin among companies in this field, most employe relations' efforts are directed—and rightfully so—toward them. However, in the process, another important group is being virtually ignored: the salaried staff and supervisory employes. Generally, their problems are passed off with the comment that they needn't be coddled or subjected to specific attention because ostensibly they represent management.

This is a pretty specious line of reasoning. Any employe, whether he runs a block machine, drives a ready-mix truck, or manages the office requires three things from his work: remuneration, recognition and satisfaction. The degree to which he realizes these three things dictates his happiness with his job. It also dictates the **degree to which his potential for performing that job is realized.** Thus, there are thousands of salaried workers in the rock products industries whose potential hasn't even been scratched.

I recently concluded ten years as a public relations director and consultant dealing almost entirely with the rock products industries. During that time it was impressed on me time and again that while technological progress was sure and rapid, growth and enlightened handling of personnel and public relations was definitely not keeping pace. These two go hand in hand. Your personnel is probably the most important public you have to please, and management of personnel is the most vital of all. There is tremendous room for improvement in this area among the rock products industries.

Here are thirteen questions to ask yourself about your organization.

If you can answer all of them honestly in the affirmative, then you have a loyal, hard-working, harmonious and effective operation.

By JOSEPH N. BELL

Your Relations?

1. Is some degree of responsibility freely delegated and actually given to every salaried employe?

Probably the best tip-off to a weak management is one which won't delegate authority. One of management's first responsibilities is to attract strong, competent men into the organization and then keep them happy in their work. One way to keep this type of man happy is to give him responsibility—not just a token responsibility but actual charge of some working part of the organization's activities. When top management feels it is too omniscient to delegate authority, then it is governed primarily by fear, and fear is no asset to any organization. When top management feels that its professional employees are not competent to accept responsibility, then management has fallen down in its responsibility to employ the right kind of people.

2. Are salary increases given when merited without waiting always for the management employe to demand them?

Salaried workers have no union to represent them. This is desirable, but only so long as top management is conscious of its responsibilities to these people in rewarding them for a job well done. I've heard too many professional people say, "I finally had to go in and beat on the desk to get a raise." This sort of thing isn't conducive to good morale in an organization. If the raise is going to be given anyway, why not give it freely and without prejudice? The professional worker who has to threaten to change jobs to get more money from his own organization is actually going to make the change the second or third time around.

3. Are supervisory employes ALWAYS consulted before any action is taken by management within their area of operations?

One of the most grievous things a management official can do to a supervisory employe is to interfere in his specific area of operations without his complete approval and understanding. For example, consider the difficulty caused a salesman in a rock products' company when the top official of his company took a personal hand in solving a knotty sales problem—without clearing with the salesman in advance. A special plea was made to the account through another company employe who was related to one of the reluctant customer's top executives. The gambit failed; and when the regular salesman called on his contact with the customer, he was confronted with a sarcastic reference to the high level selling effort, about which he knew nothing. All this put the salesman in such an acutely embarrassing spot that he could no longer do business with the company in question. But even more important, management lost a measure of confidence from and thereby lowered the effectiveness of a key professional employe.

4. Do you have a simple system of checks and balances to permit the office staff maximum freedom?

No two people do the same thing in exactly the same way. Consequently, a half-dozen different people attacking a problem a half-dozen different ways might all be right. The management which will permit this freedom within a basic set of company policies is wise indeed. But the management which forces its professional people to conform to the inflexible methods of posterity or a few top

Management Relations

Continued . . .

management people is hurting itself immeasurably. Ideas must be permitted freedom. If everything done by professional underlings must be reviewed by top management people—no two of whom see things in exactly the same way—the result is to stifle initiative and cut down on the amount and quality of work turned out. The end result of this policy, carried to its extreme, is that employes will eventually either quit or take the easy way out and conform to a sort of organizational mediocrity which effectively eliminates any originality.

5. Is INDIVIDUAL credit, both within and without the organization, given for any outstanding service performed?

An acquaintance told me about preparing a talk to be given at an industry-wide convention. The talk was to explain a particularly effective merchandising program which had been conceived by a field salesman. The speaker sent his comments to be reviewed by top management. When the talk came back, the brass had deleted all references to the salesman by name and had substituted generalities. "In this organization," said top management, "we do not go into personalities." Such an attitude is so ridiculous that it hardly merits discussion. Yet many companies have failed to recognize or use this important avenue to building the morale of salaried employes. Every individual—no matter how high in an organization—is susceptible to personal recognition. Your company should never pass up the opportunity to give it when it is deserved.

6. Are specialists allowed to specialize? Are their specific talents recognized and their recommendations followed?

Professional people often spend long years in college and out learning to be specialists in a particular field. Then they join an organization where management—with only a smattering of their specialty—tells them how to do their work, and frustration sets in. Top management cannot and should not know everything about everything. It should accept advice and guidance from people who are capable of giving it in a specific field. Specialists should be allowed to specialize. If events prove them wrong, then they can be—and should expect to be—held fully responsible.

7. Are all company employes acquainted in advance, and consulted in advance where feasible, on important changes in company policy?

It's a terrible shock for the employee of an organization to see some important announcement about his company for the first time in the newspaper or have a neighbor tell him about it. It certainly wouldn't enhance any sense of belonging that he might have nourished. Employees are members of the family. They should be treated as such by keeping them fully aware of what is going on inside the organization. Secrecy, within or without an organization, avails nothing. It usually accentuates out of all proportion something which would have been easily passed off had not a veil of secrecy been built around it. Top management unfortunately lives in the consuming conviction that what they do each day is of vital interest to the world. Actually, most of the time, the world doesn't give a hoot, and often notices only those things which an effort is made to hide.

8. Does your organization include a mechanism for exchange of information among salaried workers?

There's always a danger that each department in a company may become a "little kingdom" of its own, cultivating petty jealousies and misunderstandings between groups within the organization. Top management can prevent a great deal of this by periodically bringing together professional workers and discussing with them over-all company aims and policies. This gives a common direction to all departments. At the same time, individual department heads should be given an opportunity to tell about their own work, thus giving them a measure of prestige while keeping other departments fully informed.

9. Do your company officials make an effort to KNOW new employees and to talk with them occasionally on their personal progress and problems?

One of the greatest problems of business management today is the tremendous attrition rate in new, young salaried employees. A certain amount of this can be expected, but a great deal of it can also be eliminated in an alert organization where officials make a conscious and sincere effort to give the new employee a sense of belonging—to make him feel that the organization is actively and honestly interested in him as an individual.

10. Is there an agency of any kind within your organization for helping the salaried employe—when he needs help—with his personal problems?

Every organization is made up of people who have all kinds of problems, mental blocks, frustrations and moments of despair. Management should show an active and sympathetic interest in these human problems of its professional employees. The unions offer this to plant workers; in too many organizations, the professional employee is expected to fall back on his college education. I recall one instance where a salaried employee of a company in the rock products field had used most of his cash reserve to meet a bill and was almost broke when his father became seriously ill and he had to fly to his side. He asked the Treasurer of his company for an advance on his salary and was told that was impossible and lectured on the importance of keeping a cash reserve for emergencies. A group of his fellow workers raised the necessary money in a few minutes and sent him on his way. But he felt a bitterness toward the organization that never left him. There should certainly be an individual or an agency in every organization where professional employes of the company can seek private help when and if they need it.

11. Are professional employes permitted the freedom of movement and office hours which the type of work they are doing requires?

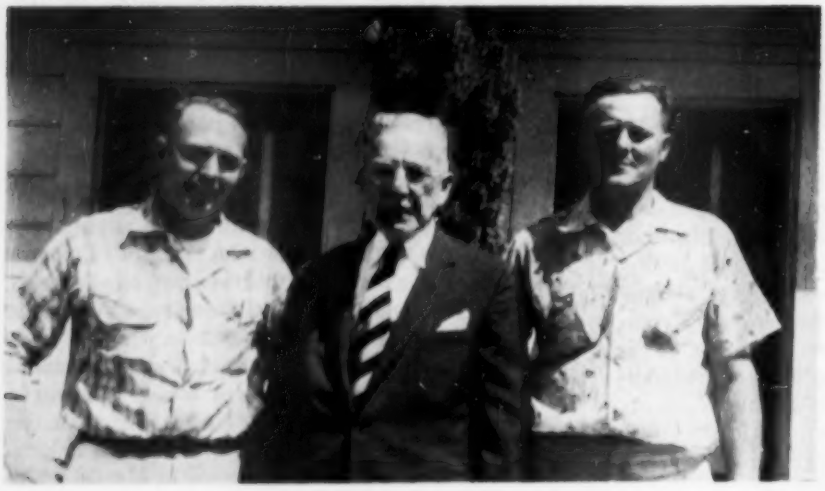
There are certainly few immediate advantages these days to the youngster who struggles through four or more years of college to prepare himself for a professional career. Oftentimes he makes considerably less than his classmate who left high school to enter a trade—although the professional worker is also trying to raise a family and buy a house. But there are intangibles, along with the potential future earning power, which can help to level off this situation. Management should make it easy for professional people to enjoy these intangibles. One of the most important is elimination of the "time-clock philosophy". A professional employee should be permitted freedom of movement without the eternal bugaboo of a major crisis if he happens to get to work a few minutes late, leaves a few minutes early, or isn't immediately available when the boss happens to be looking for him. Certainly there should be office hours, and they should be observed, but they shouldn't be the primary criterion of the efforts of a salaried worker.

12. Is an effort made to recognize the wives and families of salaried workers and to sell them on the organization?

Wives pack a tremendous influence in dictating the satisfaction of a man with his job. Accord-

Please turn to page 169

Gantry crane with 115-ft. boom and 4-cu. yd. bucket handles aggregates to bins. It has a 70-ft. lift above water line



Left to right: A. G. Heizenrader, quality control technician; Pierre Hines, consulting engineer; and Howard Hamlin, plant superintendent

By WALTER B. LENHART

At Pacific Building Materials

They Convert Waste To Useful Material

Overall view of the plant showing extensive use of pipe in handling materials

TO MANUFACTURE SAND FROM PEA GRAVEL, the Pacific Building Materials Co., Portland, Ore., recently placed in operation at the Curry Street plant a new rod mill installation, converting an excess size to desired fines. The installation is the first in a commercial plant in this area.

At times enough sand was available to meet requirements but peak demands and changing dredging conditions resulted in serious shortages. This shortage tied in with a year-round excess of pea gravel, and the desire of the owners to improve the physical characteristics of concrete (and other) sand produced led to the investment. This plant also was one of the first to use Dorrco sand sizers.

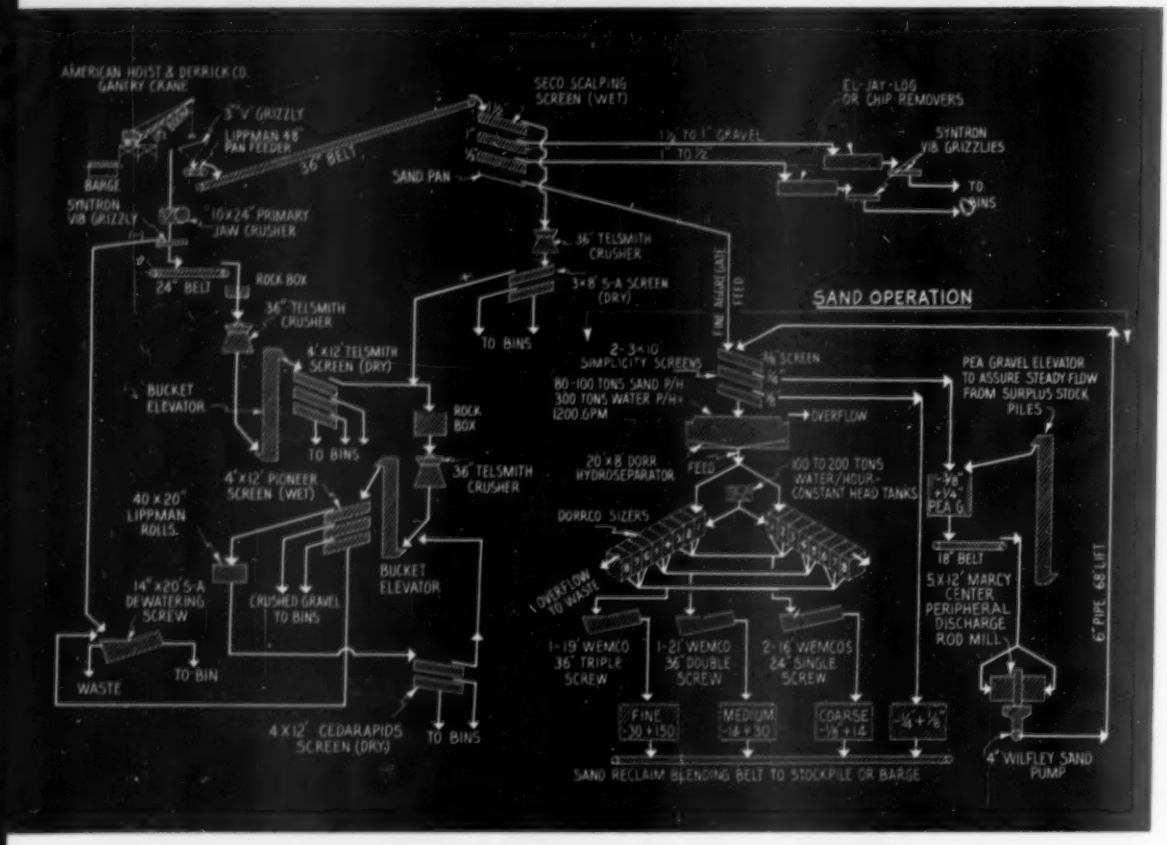
Due to ground and space limitations, the five-storied, all-steel plant* has features of compactness, flexibility and efficiency that set it apart from many in the nation. The plant is located on the west bank of the Willamette River and upstream a short distance from the downtown section of Portland.

Several other important additions have been incorporated in the modernized plant, including the installation of a third 36-in. Telsmith reduction crusher, a new Telsmith screen, Syntron vibrating grizzly to further dewater gravel, replacement of the older sand dewatering drags with Wemco sand dewatering screws and the older drag type waterlogged chip removers with a more efficient wood chip remover of the log-washer type. One of the newer screens is a 4- x 12-ft. Cedarapids screen used in the crushed gravel circuit. It has a Dodge 3-grooved pulley.

Pacific Building Materials Co. pioneered in the use of the drag type wood chip removers. With the older units, sized and washed gravel in two sizes was sent to individual drags where turbulence was sufficient to lift and remove the chips and at the same time gave the gravel an added washing. In the new method of removing wood chips, 1½- to 1-in. washed gravel goes to a log washer about 15-

*Described in ROCK PRODUCTS, October, 1948, page 88.

Flow Diagram of Plant



ft. long. Turbulence in the log washer lifts out the wood fragments. The 1- to ½-in., into which has been bled back the ½- to ⅜-in. washed gravel, is similarly treated. Each log washer uses a 15-hp. motor. Paddles are built up from time to time with Stoodite hard surfacing rods. The chip removers were supplied by the El-Jay Manufacturing Co. The new units work very satisfactorily. To further dewater the gravel, small vibrating grizzlies, using Syntron vibrators, were installed at the ends of the log washers.

The rod mill is a 5- x 12-ft. Marcy unit, made by the Mine & Smelter Supply Co. It is fed at both ends with the discharge in the center line (peripheral). It is powered with a 150-hp. General Electric motor with a Cornell Dubilier Electric Co. capacitator tied in the circuit to improve power factor. Discharge from the mill is picked up by a 4-in. Wilfley pump and delivered to the older Simplicity small gravel screens, a lift of 68 ft. The rod mill produces 25 t.p.h. of minus ¼-in., using ⅜- to ¼-in. pea gravel as a feed. Material also can be trucked from ground stored stockpiles and delivered to a 14-in. bucket elevator serving the rod mill installation so that essentially any excess size can be made into sand. Current production of pea gravel from the two Simplicity screens goes to a 12- x 20-ft. screw that is provided with water jets; the purpose of the unit is to wash out any small wood chips. The clean pea gravel from the screw is sent by chute to a 16-ft. high by 15-ft. dia. steel bin that acts as a feed-out bin for the Marcy rod mill. Ground stored material, moved by way of the bucket elevator, is delivered to the same bin. Several 6-in. dia. steel pipes in the bottom of the bin converge over an 18-in. flat running belt conveyor, with a variable speed drive which acts as the feeder to the rod mill. The belt can travel from 25 to 100 f.p.m. At the end of the conveyor the feed splits and is carried by chute to each end of the Marcy. The rod mill is loaded with 21 tons of 2-, 2½-, and 3-in. steel grinding rods, and 3-in. rods are used for make-up.

The rod mill is installed in the open, alongside

Erected on fill ground, the 5- x 12-ft. rod mill was mounted on heavy concrete foundation and piers

the plant. This area is fill ground that was previously swampy. Pierre Hines, consulting engineer for the company, after observing for many years rod and ball mill installations in the mining areas of the West, noted that one of the most common failures or operating inconveniences was due to foundation failures. Most of the failures were caused by a slight tipping which threw the unit out of line. Considerable thought was therefore given to the design of the concrete slab under the rod mill. The concrete slab under the mill is 9- x 30-ft. with off-sets for the drive motor and the Wilfley off-bearing pump. The slab is 30-in. thick and reinforced with three tons of steel rods. The pedestals for the two end trunnions are both tied into the base providing a monolithic structure.

Pea gravel is a hard, dark colored, fine grained igneous material that has a Los Angeles rattler rating from 3.2 to 3.28 at 100 revolutions and from 15.06 to 18.2 at 500 revolutions. Crushed material, minus 1½-in., has a sp. gr. of 2.64 to 2.71 and a unit weight of rodded material is 106.2 lb. per cu. ft.

Discharge from the rod mill is pumped to the top deck of the Simplicity screens with any plus going back to the feed-out bin. The manufactured sand blends continuously at these screens and flows to the hydroseparator that acts as a water scalper. Under-flow from the hydroseparator splits to two 8-spigot Dorrco sand sizers. The steeply inclined pipes serving each sizer have a short length of rubber hose at the outlet end equipped with a quick-opening, pinch-type valve. The use of a quick opening valve of this type was observed in use by local fire departments. The valve, in principle, resembles in action a conventional pipe vise which can be swung open. The side catch, instead of being a short hook arrangement, as on a pipe vise, has a handle that is a part of the hook assembly. By striking the handle a sharp blow with the hand, the valve opens instantly. The use of pinch valves permits some measure of feed control to the Dorrcos. The hose previously used at this location wore out very rapidly due to abrasion so the American Rubber Co. supplied thick-walled (3-in. dia.) rubber hose that now lasts about a year in this service.

Sand from the first three compartments of each Dorrco goes to two 24-in. Wemco single screws, 16-ft. long. Sand from compartments No. 4 and 5 goes to a 36-in. double pitch 21-ft. Wemco screw dewaterer, and the sand from compartments 6, 7 and 8 goes to a 36-in. triple screw with flared tank. This unit is 19-ft. long.

Screens ahead of the hydroseparator prepare a fourth sand size (¼- to ⅛-in.). The four sizes of sand can be blended to a reclaiming belt conveyor under the bins with the material distributed to the stacker system, to trucks (via reversible belt conveyor) or to barges.

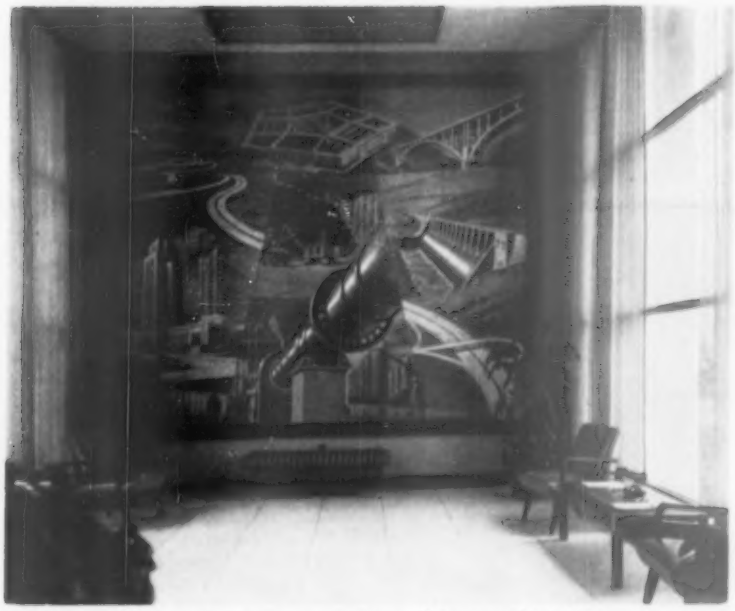
Please turn to page 120

Allentown's Showcase

Main entrance and reception room of the new general office building on the outskirts of Allentown, Penn.

All-concrete structure has poured basement walls and floors, and precast joists, columns, girders and sunshades

By JOSEPH N. BELL



Striking mural in reception room portrays some of the uses of concrete

New Office—

for Concrete

THE ALLENTOWN PORTLAND CEMENT CO. has just completed a remarkably handsome tribute to its own product. The new Allentown administration building—completed and occupied this summer—is a striking example of the effects that can be achieved in an all-concrete design. It is also remarkable on two other counts:

1. Located on the crest of a hill just north of Allentown, Penn., it overlooks the intersection of two heavily traveled routes: the Lehigh Valley Thruway and Penn. Route 145. Consequently the new building is a large and effective billboard for concrete, seen by thousands of travelers daily.

2. Allentown is one of the very few cement manufacturing companies to make a showcase for its own product in a company building. Most cement company offices are either pretty drab affairs or are located in large downtown office buildings.

The new Allentown building is the dream-come-true of Fred A. Weibel, Allentown's dynamic president. The building was in the planning stage for several years as Allentown officials searched for a site to move their quarters from downtown Allentown into a building of their own—where they could spread out.

The end result is L-shaped in design with each wing about 125 ft. in length, 42 ft. wide and paralleling one of the adjacent thruways. The building contains upper and lower floor levels as the sloping terrain provides all offices with full height windows.

The structure consists of poured concrete basement walls with precast joists supporting a poured-in-place floor slab. The roof is constructed of pre-cast concrete planks. The main elevations of the building are constructed of pre-cast concrete columns, girders and sunshades. This design permits a view of concrete framing normally concealed by outside walls. In addition, interesting shadow patterns are created, particularly at night when the building is illuminated by exterior floodlights. Windows and exterior entrance doors are of aluminum.

Corridor floors are rubber tile, general offices have asphalt tile, and executive offices are carpeted. Interior doors are flush oak set in unit steel frames. The terazzo-floored lobby, 16 ft. in height, has a descriptive mural painted on the juncture wall, depicting the drama of portland cement from major manufacturing processes to its end usage in enduring structures of concrete.

All offices are air conditioned, both summer and

Please turn to page 120

Showing how 4-cu. yd. trucks are loaded with finished materials from crushing and screening plant

This Turnpike Plant Becomes A Permanent Operation

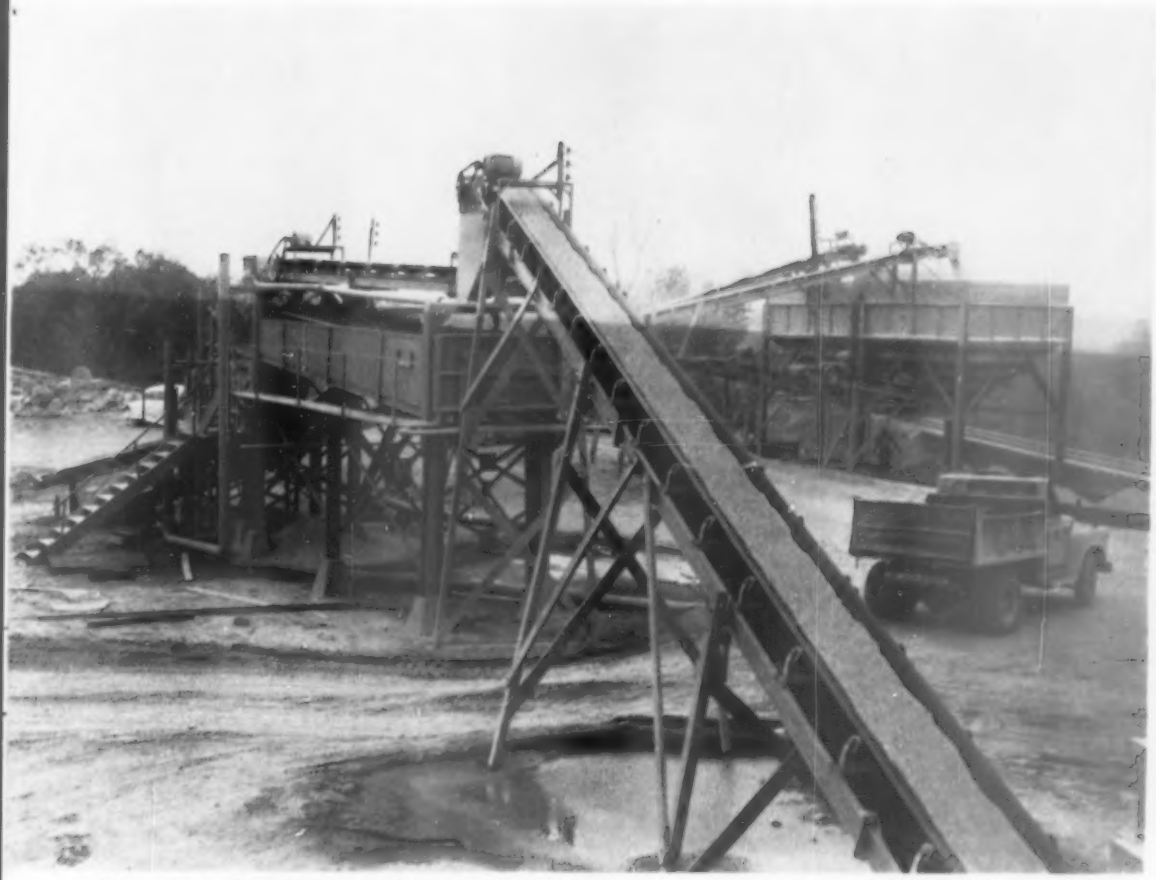
High quality product, local markets and rail facilities result in continuing business

By KENNETH A. GUTSCHICK

ONE OF THE NUMEROUS KANSAS TURNPIKE quarrying operations set up during the past twelve months is that of Concrete Materials and Construction Co., near Ottawa, Kan.* Started up in November, 1955, the 1800 t.p.d. plant is near completing contracts for 275,000 tons of bituminous aggregates for six sections of the toll road. Principal products include 1 x ¾, ¾ x ¼, and ¼ x 0-in. aggregates, which are shipped by rail to three hot-mix asphalt plants on the Turnpike.

The Ottawa operation, located at a former quarry about 40 miles east of the Turnpike, features the use of a combination of portable and permanent plant units. Portable equipment comprises a primary 3645 impact breaker plant and a secondary 4033 hammermill plant, which produce 1 x ¾ and ¾ x 0-in. sizes. The latter product is then

*See ROCK PRODUCTS, July, 1956, p. 72, and August, 1956, p. 168, for other Kansas Turnpike quarry articles. The first story dealt with production of base course material, the second with base course and concrete aggregates.



Primary 30-in. belt conveyor can feed twin log washer or the conveyor may bypass washer. Track bins, to the right

sized to ¾ x ¼ and ¼ x 0-in. at the permanent washing-screening plant, which is located at the quarry along a siding of the Missouri Pacific R. R. Co. A feature of the permanent plant is the use of loading-out bins mounted directly over a track scale. This permits rail cars to be loaded exactly to the load limit, thus effecting maximum payloads.

Unlike most Turnpike quarries that serve only one project, the one at Ottawa has become a permanent operation. This has been based upon (1) high quality limestone suitable for concrete as well as bituminous aggregates, (2) development of local markets and also for large airport and Corps of Engineers construction projects in eastern Kansas, and (3) railside location.

The first level was quarried for ballast off and on since 1920 by the Missouri Pacific Railroad. The Concrete Materials and Construction Co. is now working the Ottawa Quarry in two levels, claiming about 34 ft. of limestone.

Primary drilling is handled with a Gardner-Denver D99 wagon drill which was converted to handle sectional steel. Air is supplied by a 365-c.f.m. compressor. The drilling rate (for 3-in. holes) is about 2 f.p.m., using carbide insert rock bits. A 6- x 12-ft. drilling pattern is used, with as many as 170 holes, in 10 rows, shot at a time. Blasting is carried on with Atlas 40 percent extra 2½- x 16-in. cartridges and Rockmaster ms. delay caps. The caps are arranged to provide sequence firing between rows proceeding from front to back, with all holes in each row (except the last hole on each end of the row) having the same delay period. The

Ralph Wolfersperger, superintendent of plant

end holes have the next higher period of delay than that used in the remainder of the row, in order to effect clean breaks. Loading to the portable primary crushing plant is handled by Link-Belt Speeder LS 88 and LS 85 shovels carrying ¾-cu. yd. Amsco buckets.

The Cedarapids primary plant consists of a 3- x 14-ft. apron feeder, a 36- x 45-in. double-impeller impact-breaker, a GMC 7-110 diesel engine drive, and a 36-in. undercrusher conveyor. Normal production is 250-275 t.p.h. The conveyor discharges to a portable transfer unit, consisting of a 5-ton surge hopper, a 24-in. apron feeder and a 36-in. belt conveyor. The secondary plant comprises (in order of flow) a hopper with plate feeder, a 30-in. conveyor, a grizzly scalper, a 4- x 14-ft. double-deck screen, a 40- x 33-in. hammermill closed-circuited to the screen and a GMC twin 671 diesel engine drive. An undercrusher conveyor and elevating wheel returns the crusher product to the main 30-in. conveyor. The 45-in. x 5-ft. scalper ahead of the screen, having bars spaced with ⅝-in. openings, was installed to increase screening capacity by relieving the load on the screen. The screen has decks with 1-in. and ¾-in. openings, respectively. Oversize goes to the hammermill, and the other two products (the minus ¾-in. stone and scalper throughs join) are taken by off-bearing conveyors to portable 5-cu. yd. truck loaders. Both products are then trucked to the permanent plant for washing and screening (or for transfer to rail loading). A fleet of six International 184 5-ton trucks are used in the transferring and stockpiling operations. A portable 125-kw. Murphy diesel-generator set supplies electricity for operation of all portable plant equipment except the two crushers.

Close-up of 4- x 12-ft. vibrating screen alongside log washer

Loading cars on track scale. Note truck loading conveyors projecting from bins

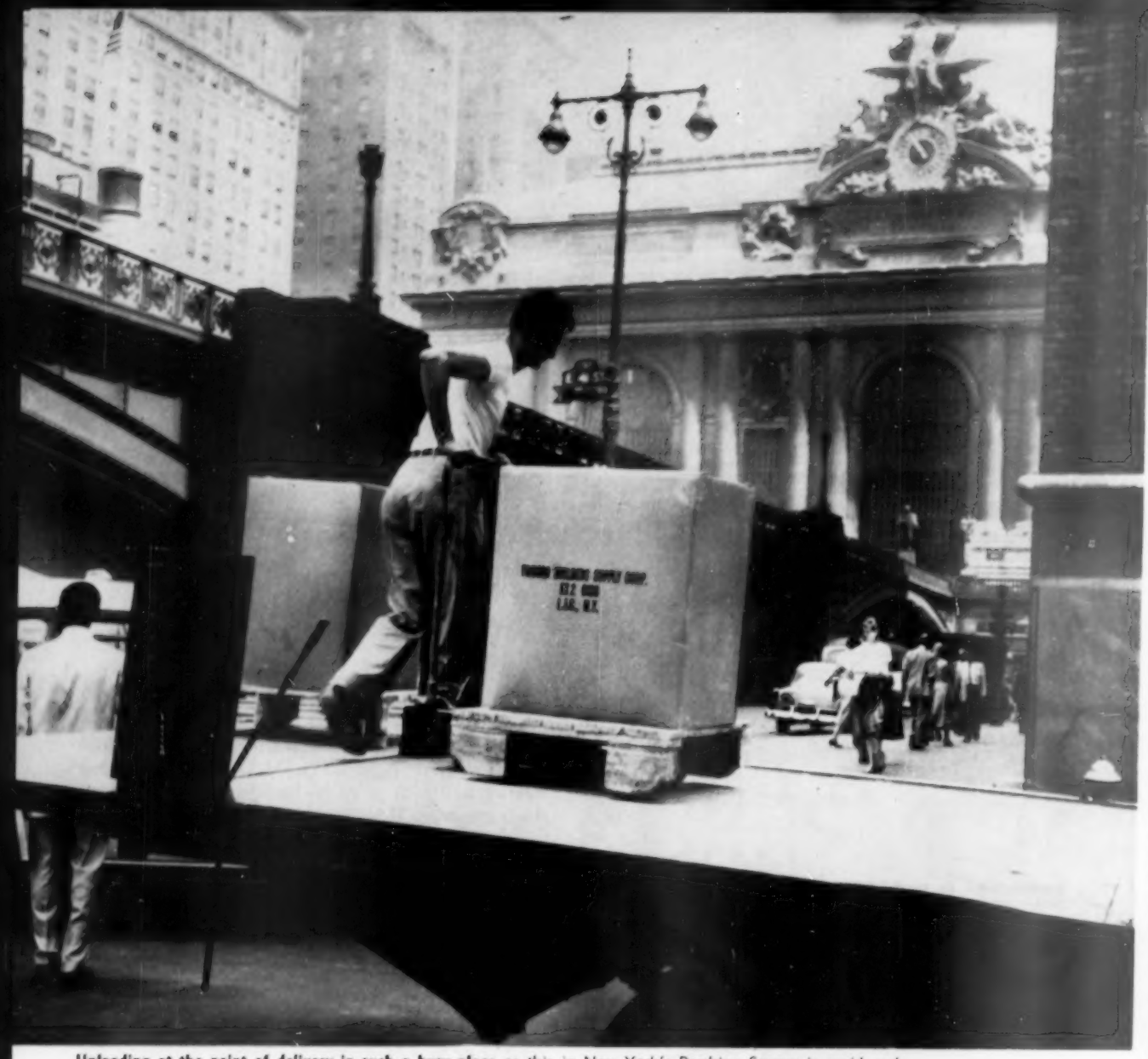
The permanent railsite plant is electrified and incorporates a 7- x 25-ft. McLanahan twin log washer and a 4- x 12-ft. Cedarapids double-deck rinsing screen. However, options are available for bypassing either or both units if the stone is clean, or if the stone does not require further screening. The latter case applies to the 1- x ¾-in. stone produced at the portable plant, which is simply transferred by the permanent plant to the track bins.

In this operation the stone is trucked up a ramp and dumped into a 20-ton hopper served by a 3- x 8-ft. apron feeder. A 30-in. belt conveyor, 65-ft. centers, transfers the material either to the log washer or to a 30-in. washer-bypass conveyor, 35-ft. centers. The washer in turn discharges to the screen, whereas the 30-in. conveyor can feed either the screen or one of the bin-loading conveyors. The screen produces ¾ x ¼ and ¼ x 0-in. products, which are taken by 24- and 20-in. conveyors, respectively, to a pair of 100-ton bins. Water spray bars are available on the screen for final washing if required.

The following table gives contractor specifications for the three sizes of bituminous aggregates used on the Kansas Turnpike.

% Passing	Coarse	Medium	Fine
1	100		
¾	55-90	100	
½	0-10	70-90	100
#4	0-5	8-22	85-98
#10			55-75
#40			28-43
#200		0-5	19-31

Please turn to page 126



Unloading at the point of delivery in such a busy place as this in New York's Pershing Square is rapid and efficient. The material goes right in to the job

Deliver Building Materials In Cardboard Boxes

By IRVING CONSTANTINE*

Four dump gates under the hopper permit filling four cartons at once. Filled cartons each weigh 90 lb., and remain on pallets until delivered to job

Corrugated containers used by Triboro to deliver aggregates to New York buildings have cut costs

TRIBORO BUILDING SUPPLY CORP., Long Island City, N.Y., saves 60 percent of the costs of hauling sand, gravel, cinders and brick to repair jobs in large buildings by packing such materials in corrugated containers. In addition, this packing allows contractor customers to do a faster, cleaner job, and reduces the inconvenience of blocked thoroughfares or littered premises.

This method did not become a reality, however, until the problem was discussed with Samuel M. Langston Co., Camden, N.J., makers of machinery for manufacturing corrugated shipping containers, who developed suitable containers to handle these heavy commodities.

The old method of handling aggregate materials and brick—still widely used—involved obtaining a permit to store loose material on sidewalks, dumping the materials in front of the building and hauling the materials in wheelbarrows to the job site in the building.

Obtaining the permit was a nuisance and an expense. Sidewalk storage was untidy, obstructed traffic, created an eyesore and resulted in a loss of aggregate. Hauling sand and gravel as needed to

*Pres., Triboro Building Supply Corp., Long Island City, N.Y.

Corrugated cartons are assembled by stapling. When top tabs are stapled, they form a frame-shaped lip that prevents spilling and adds to rigidity

a job several floors up tied up an elevator and left it littered with sand, gravel or cinders. Piles of the material at the job site created more litter, more obstruction and more loss of material.

In 1951, the author began experimenting with packaging these materials in corrugated cartons and, during the three years since Triboro has been in operation, the company has developed an efficient system for this sort of material handling.

At the Triboro warehouse, three aggregate materials—sand, gravel and cinders—are packed in 28- x 20-in. corrugated boxes, 30-in. deep. These are regular slotted cartons which come knocked down. They are double-wall, C- and B-flute, 275 Mullen test containers that are not closed on top but have 3-in. top flaps that fold and staple together to form a frame-shaped lip around the top of the box to prevent spilling and to increase rigidity.

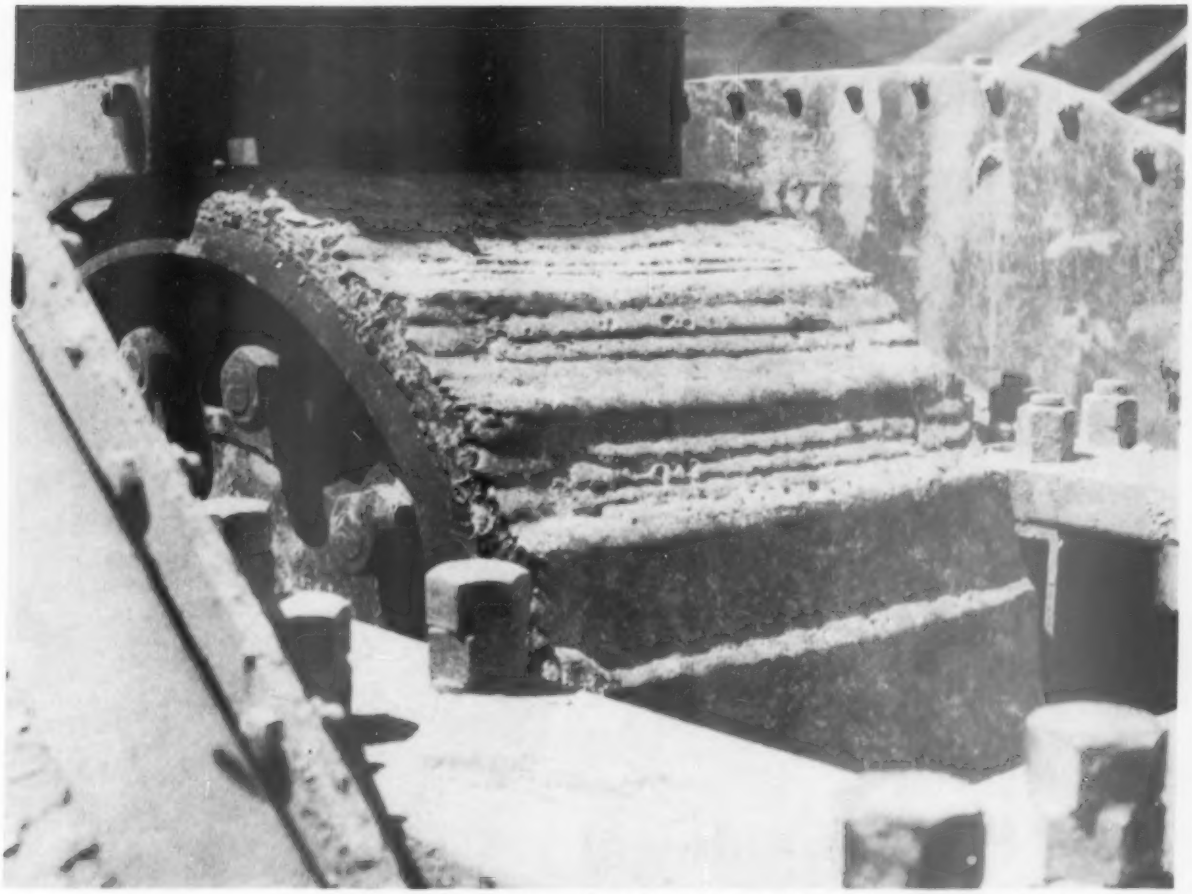
A semi-automatic arrangement is used to load four of the boxes at once from a steel hopper. Each box is placed on a wooden pallet for loading and remains on the pallet until it is finally emptied at the job site. The handling on pallets by lift fork contributes in a major way to the ease of the operation, since each carton holds a third of a cubic yard of sand, cinders or gravel and weighs about 900 lb.

Movement of the pallets from loading station to truck to job site is handled by fork truck. Triboro supplies the pallets and the manually operated lift trucks to the contractors on a loan basis and they are returned after the job is completed.

The same cartons and the same methods are used for brick except that they are hand-filled. Each carton holds 200 brick, and is transported on pallets and lift trucks in the same way as the aggregate boxes.

The inevitable savings in litter and in losses from scattering and pilferage are obvious in the mere fact that all of the materials delivered in these corrugated containers continue as a unit

Please turn to page 101



Since their last major rebuilding, this 18" x 30" Pioneer roll crusher has produced 30,000 tons of aggregate. Twice-a-week touch-ups with Stoody 100 hold wear to a minimum.

STOODY SEMI-AUTOMATIC HARD-FACING helps maintain road schedule in HIGH SIERRAS

A new 16½ mile State Highway between Shaver Lake and Huntington Lake in the high Sierras was recently completed by Phoenix Construction Co. of Bakersfield, California. One interesting feature of the job was the preparation of aggregate which was supplied by portable crushers operating near the site. Material used was quarried blue granite. Primary reduction was effected by jaw crushers followed by a final roll crushing operation. 210,000 tons of aggregate were required, as well as production of sand from the same material. Crusher rolls consequently suffered considerable wear.

The crusher corrugations were completely rebuilt with Stoody Manganese, spacing about 3" peak-to-peak. These were overlaid with Stoody 100 applied with the semi-automatic welder. Wear was never permitted to reach the manganese shell thereafter. During shut-downs, corrugations were retouched with Stoody 100, as required, restoring full efficiency for the following shifts.

Facilitating maintenance work is this portable semi-automatic welding machine. Quickly hauled to the site, it is dismounted from the truck for use.

Hard-facing methods for most successfully maintaining all your wearing equipment are fully described in the Stoody Guidebook and folder covering semi-automatic procedures. Ask your Stoody dealer for a copy (see the "Yellow Pages" of your phone book) or write direct.

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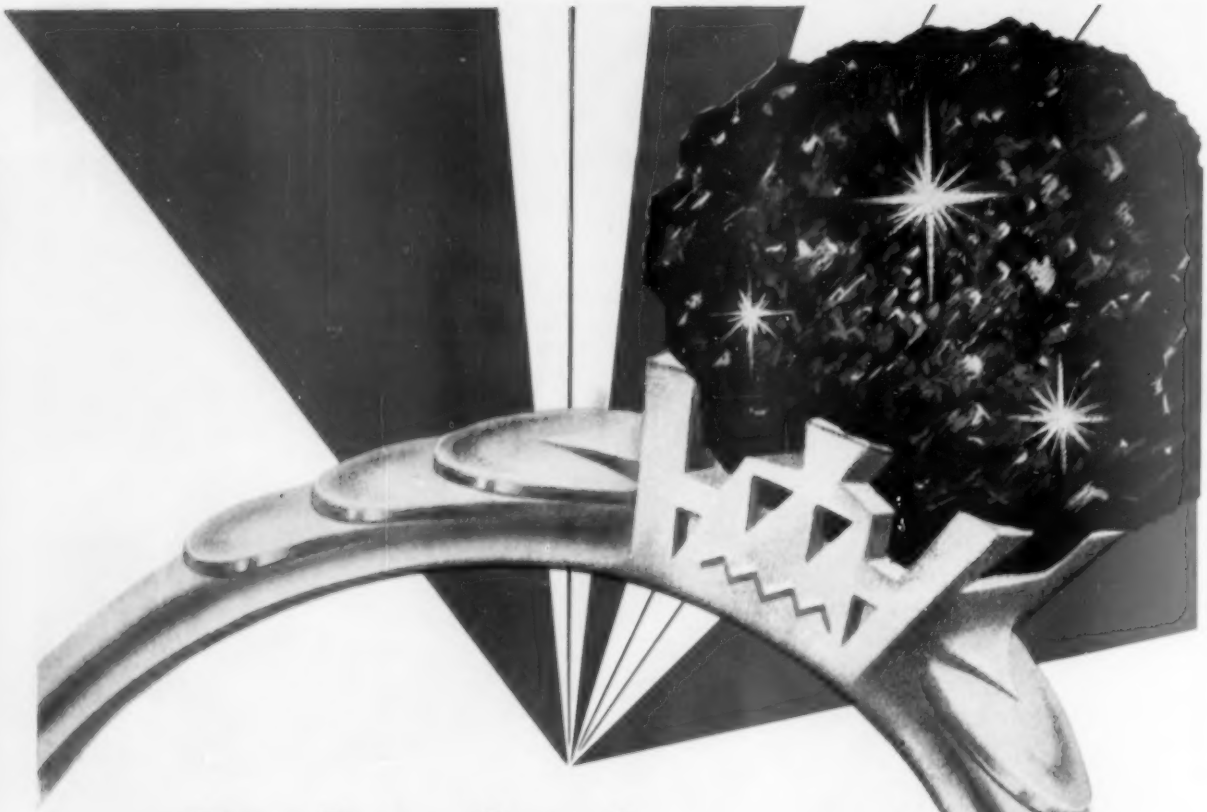

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Triboro Building Materials

Continued from page 98

Filled cartons are conveyed, two at a time, by a fork lift truck to the delivery truck.

package from the Triboro plant to the job site.

The savings in costs, although not so readily apparent, are considerable. The usual repair job requires around 5 cu. yd. of sand, gravel or cinders. Hauling 5 cu. yd. of any of these materials by wheelbarrow from the street to a job site several floors up in a building will engage three men and three wheelbarrows for half a day. At the prevailing labor rate in New York of $3.25 per hr., this comes to $39 for hauling labor, exclusive of any hire or depreciation expense on wheelbarrows.

The additional cost of these aggregates packed in boxes is $3 per cu. yd. This includes the loan of pallets and the manual fork trucks. One man can move 5 cu. yd. of boxed aggregate into a building in ½ hr. So the hauling expense on boxed aggregate is $15 for the packaging plus $1.63 for labor, or $16.63.

This means a saving in labor alone of $22.37 on every 5 cu. yd. of sand, gravel or cinders that a contractor must move to a repair job—a saving of 59.9 percent. Packaged brick offers similar economies over brick delivered loose.

While some or all of these savings are undoubtedly passed along to contractors' customers in the form of lower bids on repair jobs, the economies of these boxed materials are not so evident and impressive as the other advantages.

Experience has been that the customers in the New York area are most impressed with the elimination of inconvenience, and many will not accept any other form of delivery.

75 TON PER DAY LIME

ALL MAJOR PROCESSING EQUIPMENT DESIGNED AND BUILT BY KENNEDY

*"ON THE JOB" PHOTOS SHOWING KVS EQUIPMENT AT LINWOOD LIME PLANT

KENNEDY PRODUCTS

- Gyratory Crushers
- Swing Jaw Crushers
- Tube Mills
- Ball & Rod Mills
- Vibrating Screens
- Rock Feeders
- Air Swept Tube Mills
- Rotary Kilns
- Coolers, Dryers
- Preheaters, Deheaters
- Belts, Conveyors
- Pneumatic Transport Systems
- Waste Heat Boilers
- Pulverized Coal Firing Systems
- Steam Generators
- Asbestos Plants
- Complete Lime Plants
- Complete Cement Plants
- Complete Aggregate Processing Plants

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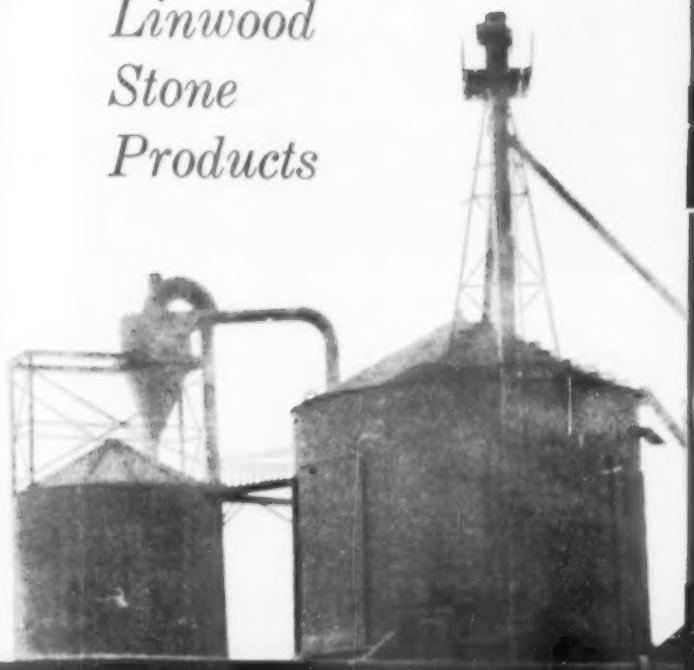
PLANT...

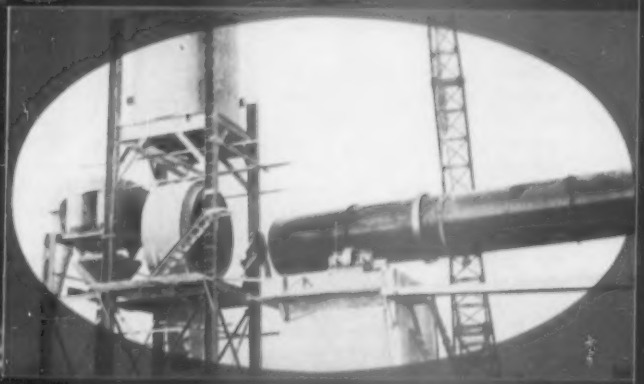
...at Linwood Stone Products



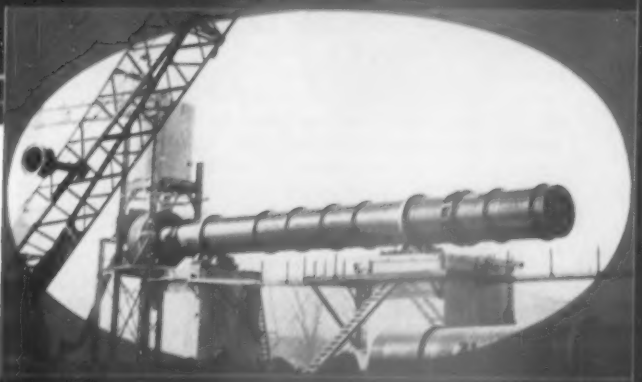
*Erecting KVS, 7' 6" x 6' 6" x 175' kiln at Linwood Stone Products

*175' KVS kiln, Dust Chamber, Dust Collectors and Induced Draft Fan.

*KVS Rotary kiln 7' 6" x 6' 6" x 175' at Plant of Linwood Stone Products.



*175' KVS kiln, Feed Bin, Dust Collector and Dust Chamber.



*7' 6" x 6' 6" x 175' Rotary kiln being set on concrete piers.

Send for Bulletin describing KVS Machinery and Equipment

Modern administration building in the foreground with the plant for production of refractory brick and ramming mixes shown in the background to the left

Kaiser Opens Refractory Plant In Ohio

TO SERVE MORE EFFICIENTLY the refractory brick market in the East and Middle West, Kaiser Aluminum & Chemical Corporation, Oakland, Calif., recently started operations at its very modern Columbiana, Ohio plant. A preview press tour of the plant was held on September 28 and the plant dedication for employes and the community was held on September 29.

Two principal products are manufactured at this plant; a basic refractory brick for high temperature applications in cement, steel, glass, copper, and other industries in which extreme temperatures must be withstood in processing, and ramming mixes which are essentially the same materials as the brick but are sacked dry and shipped to the customer.

All raw materials are shipped in railroad cars on tracks of the main line of the Pennsylvania Railroad. Periclase comes from Kaiser's Moss Landing, Calif., plant and chrome ore is obtained from the Philippine Islands. The hopper cars are emptied into an underground hopper beneath the railroad siding. The periclase is moved from the track hopper by conveyor belts and elevators to one of the 750-ton primary storage silos for further processing. Chrome ore is crushed, screened and dried before it is conveyed to the primary storage silos.

From the primary storage silos, periclase and chrome are moved over independent conveyor systems to grinding mills, screens and classifiers. Each size of processed periclase and chrome is held in separate tanks. Under the tanks is a mobile hopper and scale to weigh the materials for every batch to be processed.

Each batch is taken by belt conveyor from the weigh hopper into a mixer. In the muller type mixer, the bonds are added which bind the combination of periclase and chrome ore for making basic refractory brick. If the batch is for sacked materials, it is conveyed to a tumble-type mixer into which no water is added.

Gravity fed, the material is conveyed from the muller mixers to the presses where, under pressure of approximately 6½ tons per sq. in., it is formed into refractory brick. Full pallets of brick are moved through a tunnel dryer from which they emerge as chemically bonded brick. To some brick, three-sided metal cases are added. Other brick move to the kilns, where they are exposed to heat of approximately 2800 deg. F., emerging as burned brick. Close laboratory control is maintained to assure high quality products.

Some facts covering major equipment units in the Columbiana plant are of interest.

The primary crusher is a 14- x 24-in. Kennedy-Van Saun jaw type with a capacity of 25 t.p.h. Primary screen is a 5- x 12-ft. Tyrock single-deck unit. The secondary crusher is a 36-in. Telsmith gyratory with a capacity of 60 t.p.h. Fine screening is done with a battery of 12 single-deck and four two-deck Hum-mer screens. The plant is comparatively dust-free as screens, crushing and grinding operations are enclosed and dust is recovered in Rees blow pipe dust collectors which are of the mechanical shaking, tube type. The Hardinge-Ruggles-Coles gas-fired rotary dryer, used to dry raw materials, is 80 in. in diameter and 60 ft. long. It has a capacity of 50 t.p.h. at 10 percent to 1 percent moisture or 100 t.p.h. at 3 percent to 1 percent moisture. A double-track, 120 ft. long tunnel dryer is heated with waste heat from the tunnel kiln and with booster gas. It has a capacity of 3000 tons per month. The direct gas-fired tunnel kiln has a single track 300 ft. long, and has a capacity of 1200 tons per month. Both tunnel dryer and tunnel kiln were designed and erected by Allied Engineering Division, Ferro Corporation. An International heavy-duty dry press will later be supplemented in 1957 by a Model X Chisholm, Boyd & White heavy duty press. Conveyors were supplied by Hewitt-Robins.

At the press tour, Frank M. Cashin, vice-president and manager of Kaiser Chemicals Division, outlined the reasons for selecting Columbiana, Ohio as the site for the $5,000,000 plant, mentioning particularly its strategic location with respect to eastern and middle western markets. By the end of 1956, the Columbiana plant will have an annual capacity of 48,000 tons of basic brick annually aside from ramming mixes and furnace grains. The Moss Landing, Calif., seawater plant, from which periclase is obtained, will increase by 50 percent its capacity to produce periclase, including a new rotary kiln.

PRODUCTION ALWAYS ON SCHEDULE

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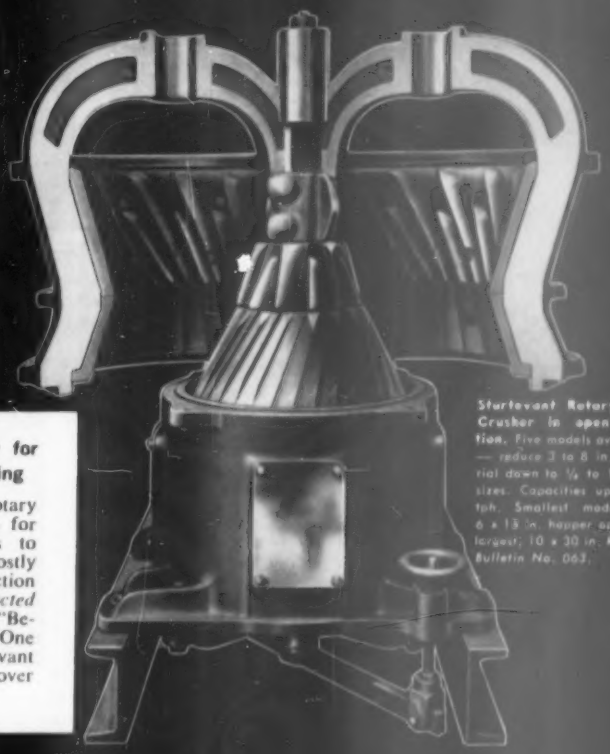
"OPEN-DOOR" DESIGN

"One Man, One Minute" Accessibility for Inspection, Clean-outs, Trouble-shooting

One man can swing open a Sturtevant Rotary Fine Crusher in a matter of minutes — for inspection and maintenance — thanks to Sturtevant's unique "Open-Door" design. Costly downtime is cut to a minimum, production kept on schedule — *even when the unexpected happens.* Little wonder that users say: "Because of their rugged construction and "One Man, One Minute" accessibility, Sturtevant machines give us *lower* operating costs over *more* years."



Sturtevant Rotary Fine Crusher in open position. Five models available — reduce 3 to 8 in. material down to ¼ to 1¼ in. sizes. Capacities up to 30 tph. Smallest model has 6 x 13 in. hopper opening; largest, 10 x 30 in. Request Bulletin No. 063.

STURTEVANT ROTARY FINE CRUSHERS REDUCE SOFT TO SEMI-HARD MATERIALS FASTER, MORE ECONOMICALLY

For uniform crushing of soft (clay, charcoal) to moderately hard materials (softer limestone, cement clinkers), the Sturtevant Rotary Fine Crusher is practically non-clogging — much faster than other machines, less costly to operate.

Smooth production flow. The single turning of a hand wheel regulates the output size (from ¼ to 1¼ in. on largest model) — provides a uniform product, dustless operation, steady output for greatest production efficiency.

A lifetime of low-downtime service. Built into Sturtevant Rotary Fine Crushers is Sturtevant's 83 years of successful engineering of dry processing units and equipment. Rugged construction, plus easy accessibility provided by Sturtevant's unique "Open-Door" design, assures more output per machine year.

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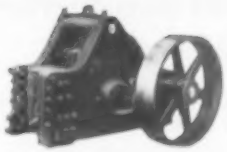
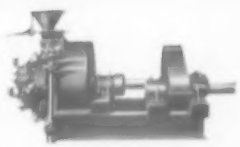


JAW CRUSHERS

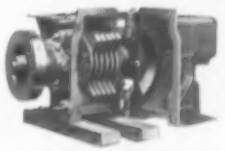
Reduce coarse (5 in. largest model) to fine (⅛ in. smallest model). Eight models range from 2 x 6 in. jaw opening (lab model) to 12 x 26 in. Capacities to 30 tph. All except two smaller sizes operate on double cam principle—crush twice per energy unit. Request Bulletin No. 062.



RING ROLL MILLS

Reduce hard or soft 1½ in. and smaller material to from 6 to 200 mesh. Grind only — no screens. Capacities of 3 models range up to 18 tph, depending on model and material. Ring diameters and faces 24 x 7 in.; 45 x 8 in.; 44 x 14 in. Request Bulletin No. 079.

ALL STURTEVANT MACHINES ARE DESIGNED TO OPERATE ADVANTAGEOUSLY IN "UNITS"



HAMMER MILLS

Reduce to 20 mesh. Swing-Sledge Mills crush moderately hard material up to 70 tph. Hinged-Hammer Pulverizers crush softer material at rates up to 30 tph. Four Swing-Sledge Mills with feed openings from 6 x 5 in. to 20 x 30½ in. Four Hinged-Hammer Pulverizers from 12 x 12 in. to 12½ x 24 in. Request Bulletin No. 084.

CRUSHING ROLLS

Reduce soft to hard 2 in. and smaller materials to from 12 to 20 mesh with minimum fines. Eight sizes, with rolls from 8 x 5 in. to 38 x 20 in.; rates to 87 tph. Three types — Balanced Rolls for automatic adjustment in operation; Plain Balanced Rolls; Laboratory Rolls. Recomended for 3 to 1 reduction. Request Bulletin No. 065.

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Here's ready-to-use stripping on International®

FROM ALABAMA:

"Planet Power steering increases production—adds safety"

On this large coal-stripping operation near Peterson, Alabama, 20 to 40 feet of earth-sand-gravel, and blue shale overburden is removed—approximately 50% of it with crawler tractor power.

The International TD-24 moves an estimated 4,000 cu yd of earth-sand-gravel overburden per 10 hours, on the average 100-foot push.

"We are well pleased with our TD-24's," states A. S. Bowen, for Bowen Construction Company, Birmingham, with the authority of 7 years of TD-24 experience. "The TD-24 is the best cutting dozer we've ever used. The 2-speed (Planet Power) steering is a great advantage for rough terrain operation, which means increased production and added operator safety."

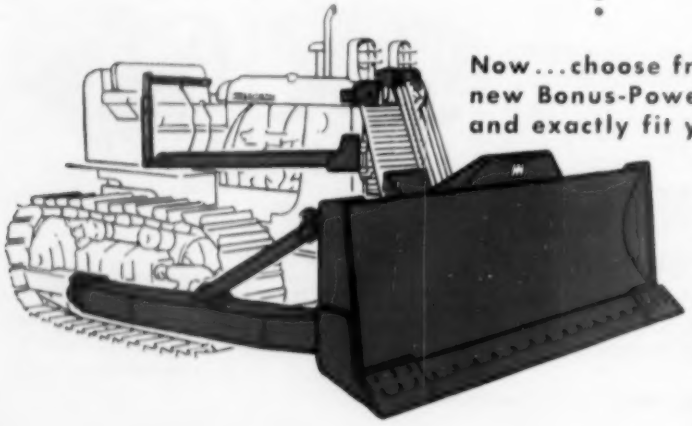
FROM WEST VIRGINIA:

"The TD-24 is built to take our hard work"

"We've owned seven International TD-24's since 1948," reports A & P Mining Company, Enterprise, West Virginia. "With this model, excessive track wear is a thing of the past. Our work is hard and the TD-24 is built to take it. We are well pleased because these machines are dependable, continuous producers."

One of the mining company's two TD-24's is shown operating under typical bituminous stripping conditions in the Jones Run area near Clarksburg.

Pushing cable tilt dozers, the crawlers are teamed with a 3-yard shovel to strip off an overburden of shale, limestone, and earth—averaging 70 feet. Operation is uncovering the 6 to 7-foot vein known as the Pittsburg seam, being mined for the electric utility market.



Now...choose from 42 new blades...to match your new Bonus-Powered International crawler and exactly fit your coal-stripping needs!

See for yourself how exclusive International TD-24 Planet Power steering eliminates the "load-limiting drag" of ordinary big crawler steering—gives you instant hi-lo power shift *under load*. Try such TD-24 job-speeding advantages as Cerametallic engine clutch operating ease and efficiency—and easy, on-the-go shifting. Measure how an International Drott 4-in-1 Skid-Shovel (1-yd. to 3-yd. capacity) can outproduce a machinery yard full of "one-purpose" machines. See your nearby International Construction Equipment Distributor for a demonstration!

experience from four states
TD-24 advantages

FROM KENTUCKY:

"Full-time live power on both TD-24 tracks ideal for highwalling"

"TD-24 Planet Power steering, giving full-time live power on both tracks, makes it an ideal highwall crawler. During our first 2,200 working hours on the TD-24 we had no downtime.

"Work capacity, operating ease, low upkeep, and dealer service are why we are using International crawlers," declares partner Maloy Mullins, of Mullins and Mullins Coal Co., Pikesville, Ky.

"Our TD-9 Drott Skid-Shovel loads out over 434 tons of coal in 7¼ hours—besides maintaining haul road and doing clean up. Takes only 15 minutes to change from bucket to angle blade."

Picture shows the Mullins' TD-24 stripping earth-shale overburden from the Elkhorn No. 2 seam.

FROM TENNESSEE:

"Still making a profit where others don't"

Sisco Brothers Mining Co., Mt. Pleasant, Tennessee, are uncovering phosphate rock deposits at a site once abandoned in 1931 because of high costs! Now they're making the venture pay, using International TD-24 capacity for large-scale overburden removal.

Says partner Earl Sisco: "We have been in the phosphate mining business for over 30 years and are making a profit reworking abandoned deposits where others find it hard to do. We have to move a tremendous yardage of overburden as cheaply as possible to 'come out' despite rising costs. First cost and dozing production of International TD-24's are most satisfactory."

The Siscos' TD-24's, working in parallel, average moving 16 cu. yd. per pass. The units operate the year round. This mining company loads out 500 tons of phosphate ore per 8-hour day!

INTERNATIONAL HARVESTER

INTERNATIONAL Construction Equipment

International Harvester Company, 180 N. Michigan Avenue, Chicago 1, Illinois

A COMPLETE POWER PACKAGE INCLUDING: Crawler, Wheel, and Pipe-Boom Tractors . . . Self-Propelled Scrapers and Bottom-Dumps . . . Crawler and Rubber-Tired Loaders . . . Off-Highway Trucks . . . Diesel and Carburetor Engines . . . Motor Trucks

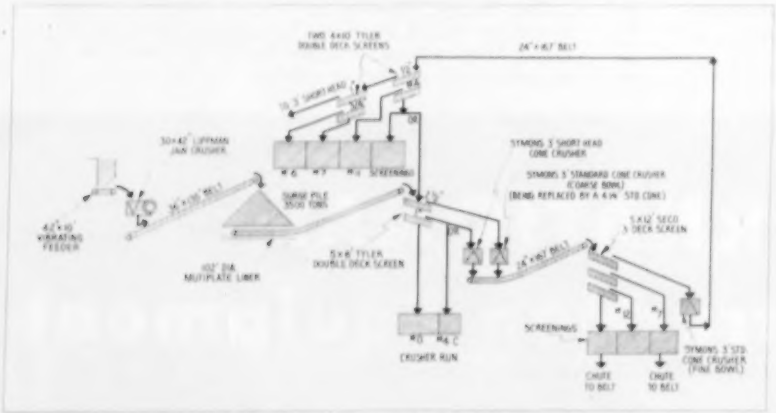
View of in-line plant with truck hopper, to the left; surge pile; first and second screening stations, side by side; and final screening

Efficient Drilling and Blasting Overcome Tough Quarry Conditions

By KENNETH A. GUTSCHICK

IN SPITE OF TOUGH QUARRYING CONDITIONS, a new quarry begun recently near Lynchburg, Va., has obtained a high degree of flexibility for producing a full range of specification aggregates. Vertical bedding of a tough, massive fine-grained limestone deposit and poor drainage are problems. But good drilling and blasting methods and intermittent pumping have been the solutions.

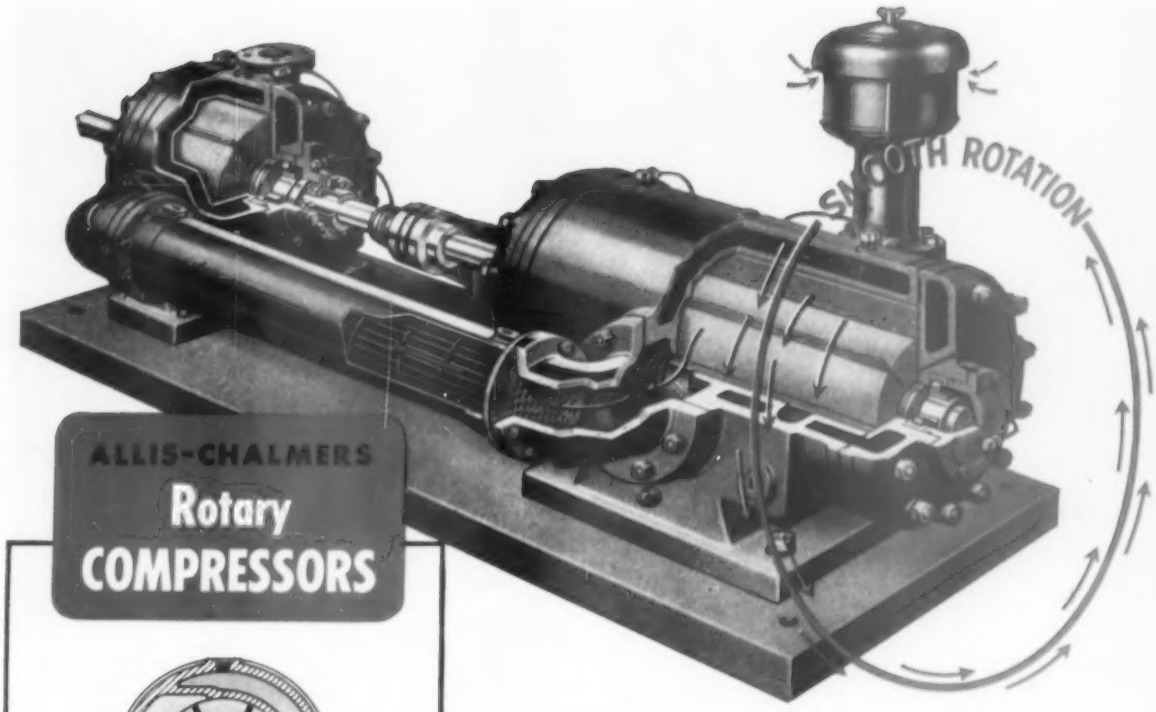
The straight-line type quarry is rated at 1500 tons per day. It is operated by Rockydale Stone Service Corp., Lynchburg Division, Roanoke, Va. The plant and quarry are in the Piedmont section of Virginia, about five miles southeast of Lynchburg. Limestone quarries are not too common in the Piedmont province of the eastern U.S. Most of the region is underlain by complex igneous and metamorphic rocks such as granite, schist, slate, etc.


TWO 4x10 TYLER DOUBLE DECK SCREENS
24" x 67' BELT
SYMONS 5' SHORT HEAD CONE CRUSHER
SYMONS 5' STANDARD CONE CRUSHER (COARSE SCNC)
5'x12' SECO 3 DECK SCREEN
5'x6' TYLER DOUBLE DECK SCREEN
SCREENINGS
CRUSHER RUN
CHUTE TO BELT
CHUTE TO BELT

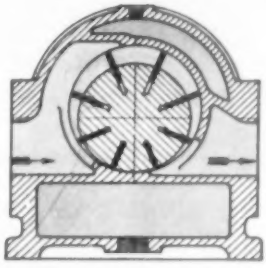
Flowsheet of crushed stone operations

The Rockydale quarry is in a pre-Cambrian limestone deposit that outcrops along a valley bottom. This physical location allows poor drainage and tough quarrying conditions. In developing the quarry, the company had to divert a small creek a few hundred feet to the north. Pumping is necessary because the quarry floor is below the water table.

Presently, the face is 50 ft., with quarrying progressing upstream. Overburden averages 5 ft. at the site, although it thickens much along the valley sides. Drilling is done with DH-123 and DH99 Gardner-Denver Air-Trac wagon drills, which are mounted on crawler tracks for mobility. They drill 3½- and 3-in. holes, respectively. Air is supplied to the drills through 4-in. lines by two 500 c.f.m. piston-type Ingersoll-Rand air compressors. These units, formerly portable, are



ALLIS-CHALMERS
Rotary
COMPRESSORS



How *Ro-Flo* units operate:
Centrifugal force moves vanes to outside wall to form air chamber.

Smooth-running Ro-Flo Compressors cut vibration, and provide...

Constant Efficiency

YEAR after year there is no change in the efficiency of a *Ro-Flo* compressor.

Efficiency always remains uniformly high even if parts wear. Here's the reason:

During operation the sliding vanes of the rotor (see cross section above) press against the cylinder wall to form air cells. Even if these vanes wear, the centrifugal force holds them in contact with the cylinder wall so that the air cell never changes and efficiency and air flow remain constant.

Rotary Means Smooth Operation

Smooth rotation cuts vibration ... eliminates need for heavy foundations. Small *Ro-Flo* units can be bolted directly to the floor. Large units need only a simple slab.

Maintenance is low. There is no wear and tear on compressors from shock and vibration ... no pistons and valves.

A Type and Size for Every Need

Single-stage units for pressures to 50 pounds gauge, and volumes from 42 to 3245 cfm. Two-stage units for 250 to 1800 cfm at pressures from 60 to 125 pounds gauge.

Single and two-stage vacuum pumps for vacuums to 0.3 inch mercury absolute from 22 to 5950 cfm.

GET INFORMATION — Call your nearest A-C office or write for bulletins 16B8244 (2-stage) and 16B8126 (1-stage). Allis-Chalmers, Industrial Equipment Division, Milwaukee 1, Wis.

Ro-Flo is an Allis-Chalmers trademark.

ALLIS-CHALMERS A-C ALLIS CHALMERS

A-5134

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Quarry scene with 1½-cu. yd. shovel loading 20-ton truck. Two wagon drills may be seen in the background, above

mounted permanently outside the maintenance shop. Each is direct driven by 100-hp., 900 r.p.m. electric motors. Drilling rates average 25 f.p.h., using sectional steel and Timken carbide-insert bits. The latter have an average life of 1000 ft. in the tough limestone.

Good primary breakage has been attained through use of alternate high-low velocity explosives and alternate delays. Holes are drilled on either a 9- x 11-ft. or 8- x 10-ft. pattern. About 50 holes, in three rows, are shot at a time. The diagram illustrated shows a typical loading-firing pattern.

The "fast" holes are loaded solid with Atlas 40 percent extra and/or 60 percent extra (3-in. cartridges), with about 8 ft. of stemming at the top. The "slow" holes carry Atlas No. 7 Flodyn. Because the holes are normally wet, 60 percent gelatin is used as bottom charges. Detonation is by Rockmaster millisecond delay caps placed 15 ft. from the bottom.

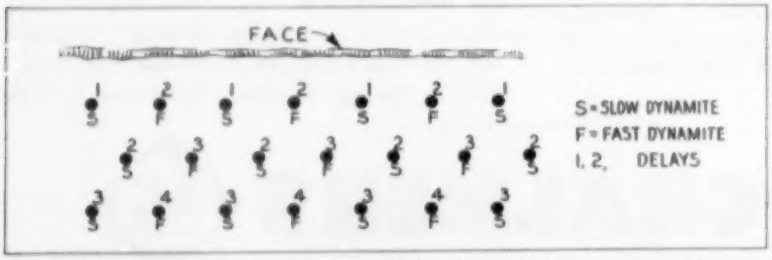
The "slow" holes fire first. Under this blasting procedure, the strata are first stressed, then shattered, to effect good breakage. Yields average 3½ tons per pound of explosive. For secondary breakage, the company uses jackhammers. Loading is handled by a 1½-cu. yd. Northwest Model 6 shovel. Three 20-ton Euclid 36FD trucks deliver to the plant. The one-way haul is about 1200 ft.

Principal plant units include (in order of flow) a primary jaw crusher, a 3500-ton surge pile, and three screening stations, the first and third being mounted side by side. Secondary and tertiary reduction are handled by three cone crushers. A unique feature is the use of vibrating pan feeder for the jaw crusher.

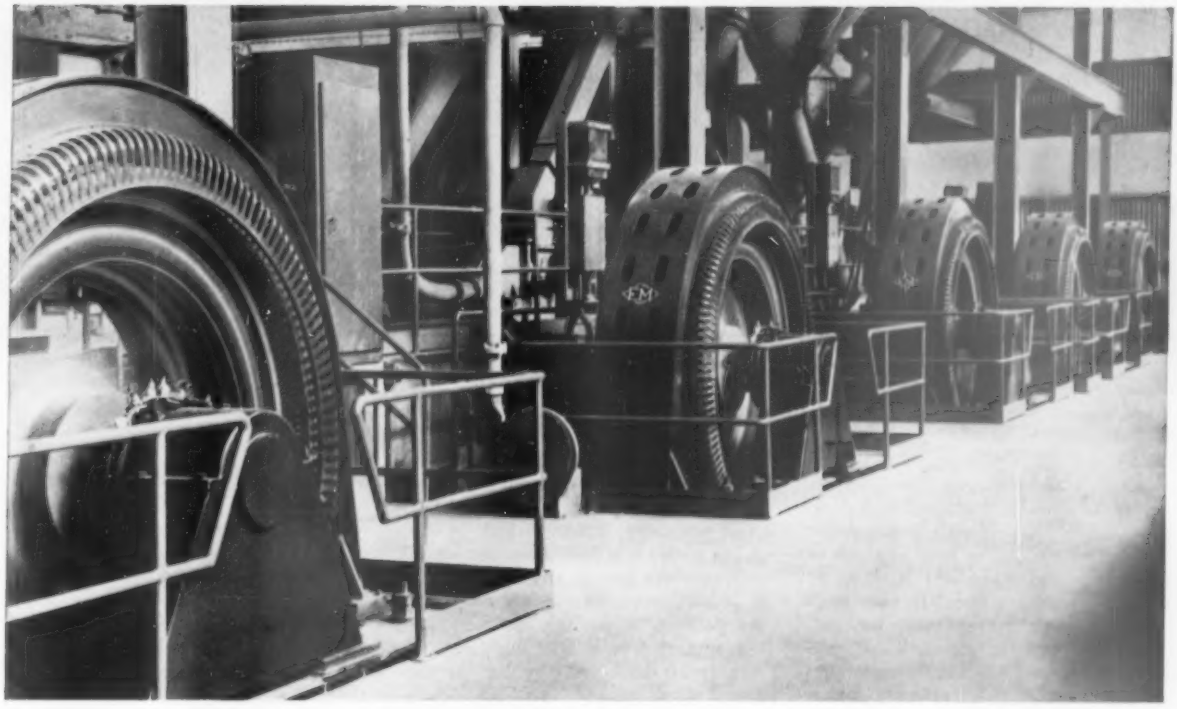
Stone is fed to a 30- x 42-in. Lippmann grizzly King jaw crusher (125-hp. drive) by a Jeffrey-Traylor 5H 42 in. x 10 ft. electric vibrating feeder. This feeder is one of the few of its type applied to this work. An apron feeder is more commonly used ahead of jaw crushers. This feeder has three advantages: first, there is practically no wear since there are no moving parts; second, there is almost no cleanup problem underneath; and third, it is possible to choke feed the crusher, increasing or decreasing volume when necessary by a simple rheostat. To protect the pan during dumping, truck loads are dumped into an adjacent 30-ton hopper, from which the stone flows slowly by gravity to the feeder. Three suspended ballast chains ahead of the feeder control the flow. This feeding setup has worked well, although in wet weather the material tends to pack.

The crusher, with 4½-in. opening, produces 185 t.p.h. It has an extra deep crushing chamber and longer than normal jaw, to minimize elongated pieces, since the stone tends to be slabby. From the crusher, the material is belt-conveyed to a 3500-ton surge pile. The reclaiming tunnel is built of 102-in. dia. Armco multiplate pipe. This section is 50 ft. long and houses a 30-in. vibrating feeder and a 30-in. belt conveyor that serves the first screening station.

(Continued on page 112)



Blasting pattern showing how fast and slow dynamite charges are spaced



Notable for advancements in safety and simplicity is the new grinding mill department of Dragon Cement Company, Northampton, Pa. An excellent example of compactness, it is designed to be safely operated by four men. Rated capacity will be 2,400,000 bbl. of cement annually.

How Dragon Cement Company drives mills efficiently and safely in new 4-man grinding mill department

E-M "INCHER" CONTROL

This E-M-developed control provides quick, safe spotting of grinding mills. It turns mills literally inch-by-inch into desired position, all at the touch of a button. One E-M "Incher" Control can serve several motors, saving time and greatly increasing safety.

● Helping to achieve labor conservation, simplified maintenance, and safety in this new raw and finish grinding mill are five rugged E-M Synchronous Motors rated 1000 hp, 180 rpm, 2300 volts, "unity" power factor. Specifically, here's how these E-M Motors contribute to new standards of economical plant operation:

1. **HIGH EFFICIENCY** conversion of electric power to mechanical power, resulting in minimum electric power cost for operation of mills.
2. **POWER FACTOR CORRECTION** with "unity" power factor helps keep overall plant power factor high, further reducing power costs.
3. **DIRECT CONNECTION** of Motors to mills, thru rigid couplings for simplicity and minimum installation space.
4. **HEAVY-DUTY MILL-TYPE CONSTRUCTION,** including extra-heavy motor frame, high thermal capacity cage windings, dust resistant coil finish, and cool running sleeve-type bearings.

When you combine such motor features and top performance with E-M Hi-Fuse (high voltage, high interrupting capacity) Controls, you get the ultimate in protection as well. Complete safety for personnel and equipment, plus *extra safeguards* against short circuits and abnormal operating conditions. Your nearest E-M sales engineer can give you facts and data. Write the factory for E-M Publication No. 175 on large synchronous motors.

ELECTRIC MACHINERY MFG. COMPANY
MINNEAPOLIS 13, MINNESOTA

Specialists in making motors do **EXACTLY WHAT YOU WANT THEM TO**

1200-TPA-2183

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Primary jaw crusher served by vibrating pan feeder

Final screening section with cone crusher below

A 5- x 8-ft. Tyrock F600 screen serves as a scalping screen. Top deck and middle deck sizes go to a Symons 3 ft. standard, coarse bowl, (which is being replaced by a 4¼-ft. Symons standard crusher) and 3-ft. shorthead cone crushers, respectively, for further reduction. Bottom deck throughs (generally minus 1-in.) represent crusher run material. The primary screen (middle deck) is also used to produce No. 0 stone (3½ x ¾-in.) or No. 4 stone (2 x 1-in.). These products fall to a 3-compartment catenary bin.

The second screening station has a 5- x 12-ft. Seco type H three-deck screen, which is fed by the 24-in. conveyor issuing from the two cone crushers. The three screen products drop to a catenary bin, while the top deck rejects are recrushed in a 3-ft. Symons standard cone crusher (with fine bowl). Another 24-in. conveyor returns this crusher product to the third screening station, which is adjacent to the first unit. Also, the 24-in. conveyor can handle any bin product, if desired, since the bins and conveyor are parallel. If crusher run made on the primary screen lacks fines, screenings from the secondary bin or the No. 3 screening units can be fed back to the crusher run screen to make up any deficiency.

Final sizing is effected on a pair of 4- x 10-ft. Tyler-Niagara type 300 screens mounted in series, with the products stored in a 4-compartment catenary bin. Chutes from these screens are arranged so that any size can be blended with any other size. Screenings made here also can be transferred by short conveyor to the primary screen. Among the products which can be sized at this station are No. 6 (1 x ½), No. 7 (1 x No. 4), No. 9 (¾ x No. 4), No. 11 (½ x No. 4), and No. 12 (⅜ x No. 8). These screens were located in tandem to save head room.

For loading from stockpile the company uses a 1⅝-cu. yd. Michigan 125A loader and a Barber-Greene 545 bucket loader.

Shipments are made by truck, and rail facilities are being constructed. The plant is located on the N & W railroad (main line) and has access to the C & O railroad about ¼ mile away.

Officers include Gordon C. Willis, president; Holman Willis Jr., vice-president; and Keith Willis, secretary-treasurer. James W. MacDonald is superintendent and M. M. Martin, foreman. The company also operates a large quarry at Roanoke.

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WEITZEL AND SONS CO., Fort Collins, Colo., has opened up a crushing plant to produce aggregate from gravel and rock from along the Cache la Poudre River.

W. MacDonald, superintendent, and **M. M. Martin,** foreman

IMPORTS OF ROMAN, PORTLAND, OR OTHER HYDRAULIC CEMENTS
(Except White, Nonstaining Portland Cement)[1]
(In barrels of 376 lb.)[2]

Country of Origin	January-June					
	1956		1955		Total 1955	
	Barrels	Value	Barrels	Value	Barrels	Value
Belgium-Luxembourg	409,748	$1,413,705	379,873	$1,070,508	1,468,341	$ 4,088,744
Canada	211,619	602,460	188,918	742,453	724,101	2,863,631
Colombia	90,118	254,165	—	—	56,331	208,016
Denmark	225,021	663,256	301	1,829	24,580	65,312
Dominican Republic	76,865	185,053	60,864	136,282	149,364	347,498
Finland	—	—	—	—	12,899	49,500
France	120	4,058	—	—	2,588	17,612
Germany, West	185,213	682,238	378,209	1,002,377	1,230,608	3,208,697
Israel	153,234	498,006	—	—	52,497	148,574
Japan	—	—	—	—	1,186	2,584
Mexico	30,389	65,663	175,831	380,260	266,907	585,769
Netherlands	—	—	—	—	1,759	7,642
Portugal	124,251	327,642	—	—	2,990	6,273
Sweden	183,060	661,767	53,661	98,502	428,820	865,153
United Kingdom	100,097	362,341	17,773	72,912	27,476	118,968
Yugoslavia	82,025	200,740	6,159	30,814	109,506	328,551
Totals	1,871,760	$5,931,094	1,261,589	$3,535,937	4,559,953	$12,712,524

1. Shipments having a value less than $250 are not included in the source statistics; hence, actual imports from some countries, particularly Canada and Mexico, might have been slightly higher than shown in the above figures.
2. Computed from lb., the unit in which the source statistics are reported. Weight of containers included.

A. P. GREEN
Plastic and Castable Refractories

Give Longer Service . . . Lower Maintenance Costs In Kiln Hoods, Coolers and Dust Collectors

A. P. Green Monolithic Refractory Enclosure on Allis-Chalmers Air Quenching Cooler

A. P. Green Monolithic Hood in Modern Cement Plant

A. P. Green Monolithic Enclosure of Dust Collector Housing

A. P. Green Plastic and Castable Refractories form a one-piece, monolithic, air-tight refractory lining. There are no joints for dust to penetrate, bulging is eliminated, and structural strength is increased. No special shapes are required.

The use of A. P. Green Monolithic Construction is finding wide acceptance in all types of patented coolers. Both monolithic side walls and arches on patented cooler enclosures are setting new standards. They offer ease of installation, provision for positive and free floating anchorage, and joint-free surfaces to resist dust penetration and failure due to bulging and buckling.

In kiln hoods, coolers, and dust collectors of some of today's most modern cement and lime plants, the real and definite advantages of monolithic construction provide longer service, reduced maintenance costs, and higher thermal efficiency. Your A. P. Green representative will show you how you, too, can enjoy these money-saving advantages.

A. P. Green offers a complete line of refractory products for the cement and lime industry. Whatever your requirement, for specific recommendations without obligation, contact your local A. P. Green distributor . . . he's listed in the yellow pages of your telephone directory.

A. P. GREEN FIRE BRICK COMPANY
MEXICO, MISSOURI, U. S. A.
PLANTS: Mexico, Mo. • Woodbridge, N. J. • Sulphur Springs, Texas

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A. P. Green **REFRACTORY PRODUCTS**

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Safety meeting of employes held on November 7, 1956

Prompt, Accurate Reporting of Accidents is Company's First Reward for Safety Program

Incentive Safety Program Pays Off for Hamilton Gravel Employes

SAFETY PAYS OFF for the employes of The Hamilton Gravel Co., as a result of a new incentive safety program. In the first three months of its campaign, The Hamilton Gravel Co. handed out $10 awards to 22 of its 28 employes participating in the program. For the second three months that the program has been in effect, the quarterly award of $10 was earned by 25 of the 29 individuals eligible to receive the award. Chargeable accidents dropped from six in the first quarter to four in the second quarter.

Prompt and accurate reporting of accidents has been the company's first reward for its safe work and driving program. The Hamilton Gravel Co. now gets more complete information on accidents, how and why they happen. Better reporting simplifies accident prevention—the company can see the cause of the accident and take steps to prevent it.

The Safety Program, however, is a long range campaign. In the future the company expects it to provide many more benefits — both indirect and "dollar-and-cent" benefits. In addition to building goodwill with customers and the public, promoting courtesy in driving, and rewarding personnel for working safely, the firm hopes to reduce equipment repair bills, down-time, and insurance premiums.

"In 1956, we hope to develop an awareness of the importance of working safely," explains Roger H. Slugg, vice-president of operations . . "This will bring about safe work habits and attitudes. Then the application of safety will take place, bringing a substantial reduction in personal injuries and property-damage accidents in our company."

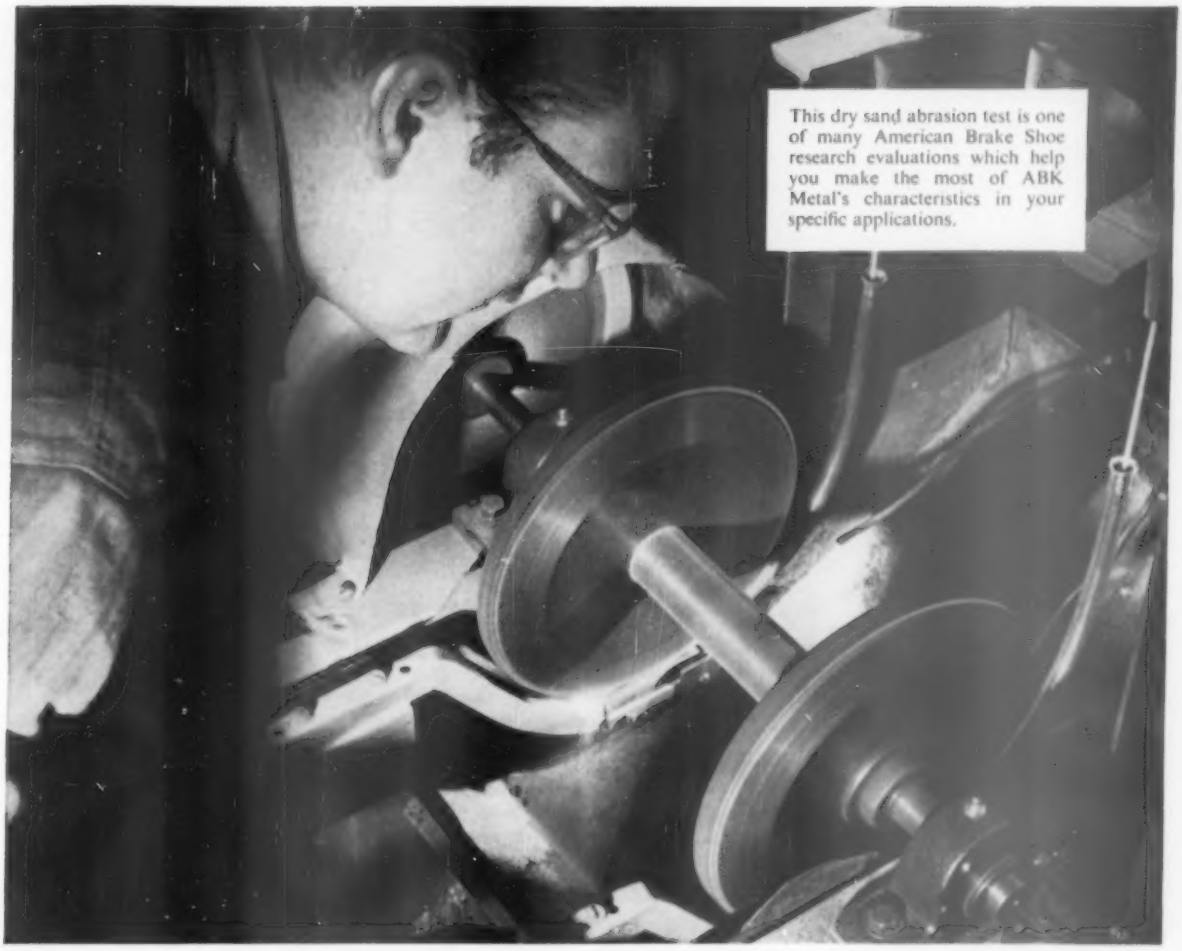
As for immediate results, the company now has a quicker follow-up system. Management's attention and the participants' interest is focused on the accident soon after it happens. The company can make an investigation and a settlement on the many small property damage accidents that seem to plague the ready mixed industry because of off-the-road operations on construction projects.

The firm is in a better position to promote goodwill with customers and the public. If a driver reports a property damage accident promptly, management is saved the embarrassment formerly experienced when an injured party calls the company for satisfaction on a claim that the management knows nothing about.

A safety committee and two employe teams are the backbone of the incentive safety plan. Composed of the vice-president of operations, team captains, the plant superintendent, head mechanic, and an insurance company representative, the committee reviews each accident report and decides, by secret ballot, whether it is chargeable or non-chargeable. Its decisions are made on the basis of National Safety Council rules for voting on accidents. If the committee votes the accident chargeable, the employe responsible forfeits his $10 award, given to all eligible employes for each accident-free quarter. Failure to report an accident within 16 hr. automatically cancels eligibilty for the quarterly award of $10, whether or not the accident is later voted chargeable or non-chargeable to the individual.

Forfeited awards, in addition to a company deposit of $2.50 per driver each quarter, make up a general pool, the prize for which the two driver teams compete. At the end of each year, the team with the least number of accidents charged to its members wins the money in the general pool. The money is divided only among members who have not had a chargeable accident during the year. Each member without an accident receives one share of the pool for each accident-free year with the company.

On October 1, 1956, the General Pool amounted to $257.50 for division on December 31, 1956. It may increase in value if there are additional forfeitures in the last three months of 1956. At the present time this represents over $32 for each member of the leading team who has not had a chargeable accident in 1956. Checks from the division of the general pool will be presented at the annual safety dinner for employes and their wives in January, 1957. Checks for quarterly safety awards are mailed to employes at home so that their families can see



This dry sand abrasion test is one of many American Brake Shoe research evaluations which help you make the most of ABK Metal's characteristics in your specific applications.

ABK® METAL

research helps your fight against abrasion

In severe abrasive service—such as mill liners—three to four times the usual life can be expected with ABK Metal! Its extreme hardness (500 to 700 Brinell) and very high resistance to abrasion make it "good as new" when ordinary materials are worn out.

Because it lasts so much longer, ABK Metal costs far less per ton of material processed. ABK Metal liners reduce down-time and prevent costly losses of production. ABK Metal also slashes the labor expense of frequent liner replacement.

ABK Metal—a controlled structure nickel-chrome iron—is produced *only* by American Brake Shoe.

A-1826

AMERICAN Brake Shoe COMPANY

BRAKE SHOE & CASTINGS DIVISION
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Safety Committee of the Hamilton Gravel Co. Front row; left to right: Clyde Matheny, head mechanic; Roger H. Slugg, vice-president of operations, chairman; and John Wenger, representing Ohio Casualty Insurance Co. Standing, left to right: Dale York, captain, Driver Team A; Robert Ashbrook, captain, Driver Team B; and Richard Sackenheim, plant superintendent

the tangible evidence of safe work habits.

To emphasize its incentive program, begun April 1, 1956, The Hamilton Gravel Co. is setting more rigid standards for new drivers, which include a required physical examination. In addition, it schedules meetings every two months to review the safety program through movies, speeches, and entertainment. The company tries to make meetings so interesting that everyone will attend voluntarily. Its policy at the meetings: no pay and no drinks.

In an address before the Ohio Ready Mixed Concrete Association, vice-president Roger H. Slugg, outlined the principles of his company's incentive plan which aims to promote goodwill and reduce accidents resulting in costly repairs, down-time, and high insurance premiums. An incentive safety program must be a positive, fair way of rewarding personnel for working safely. Mr. Slugg told the O.R.M.C.A. "In our program we have no penalties for negative thinking. All we ask is that each man perform his regular work in a safe fashion. If he works safely he gets extra pay for that alone."

Mr. Slugg pointed out that management approval and employe acceptance are essential for a successful program. The company should choose awards that stimulate a competitive spirit, boost morale, and motivate employes to work safely. Where necessary the program should cooperate with the union, and always be active, alive, and subject to review.

In its first six months, the incentive safety program has made company personnel more aware of safety. Employes recognize that they are seeing, hearing, and talking more about safety than before. The number of employe memberships in the Hamilton Safety Council has doubled since 1955—this with no change in the method of solicitation.

In the initial period, the company has not realized a sudden drop in accidents, but it has achieved more accurate reporting of accidents. Reduction of accidents is the long range goal. Says Mr. Slugg, "We think our program will do this for us over a period of time if we continue to keep it active and alive."

Quarry Production Increased

TURNER LIME AND ROCK QUARRY, Shelbina, Mo., has increased production 50 percent in five years by replacing its older equipment with new machinery. Production now runs to 600 tons per 8 hr. shift.

Mining a 25-ft. seam of Burlington rock, Turner utilizes a Caterpillar D7 Tractor to strip the 20 to 25-ft. overburden. Drilling is done with a Joy drill having a Sullivan hammer, using a Chicago-Pneumatic 210-PD-40 air compressor, powered by a Caterpillar D4600 engine. Blasting is achieved with ¼- x 8-in. Gold Medal explosive with maximum delay electro blasting caps.

A 1-cu. yd. Lorain L50 shovel loads the rock into trucks for transportation to the 36- x 40-in. Dixie crusher, which is powered by a D375 Cat engine. A 2-hp. Minneapolis-Moline engine powers the vibrating screen and conveyors, and three hoppers discharge the crushed rock into trucks for delivery or stockpiling. A Caterpillar D6 tractor maintains the stockpile, and a Cat HT4 Traxcavator loads into trucks the rock used for agricultural limestone, road surface material and concrete aggregate.

Canadian Asbestos Output

A DOMINION BUREAU OF STATISTICS report has listed Canadian producers' shipments of asbestos during 1955 as 1,063,802 tons, valued at $96,191,317; both figures are higher than in any previous year.

Exports of asbestos and asbestos products were valued in 1955 at $97,705,882 as compared to $83,868,863 in 1954. Imports were $4,053,832, compared with $3,539,132 in 1954.

Longtime Employes Honored

NEW YORK TRAP ROCK CORP., Newburgh, N. Y., has named three new steel barges after employes with combined service of 118 years. William P. Foss III presided at the commissioning ceremonies. The barges, which will carry 1300 tons of crushed stone, are part of an extensive modernization program.

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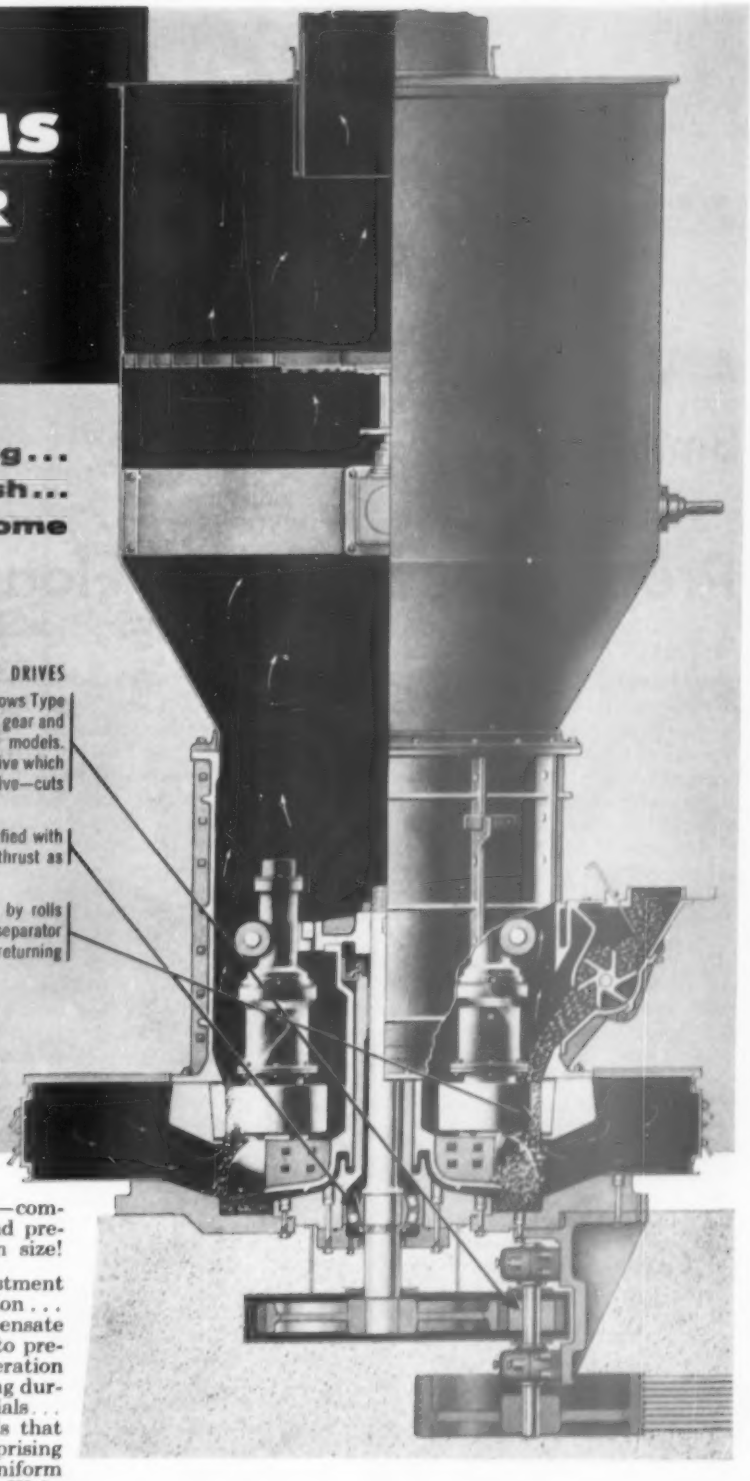
ACE HILL QUARRIES, Nebraska City, Nebr., has been incorporated with an authorized capital stock of $40,000. Incorporators are Karl H. Nelson, Nebraska City, and G. H. Nelson, Weeping Water.

A view of the Turner Lime and Rock Quarry's plant showing the 36- x 40-in. crusher, diesel engine, conveyors, screen and hopper

WILLIAMS ROLLER MILLS



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EXCLUSIVE GEARLESS AND SPUR GEAR DRIVES

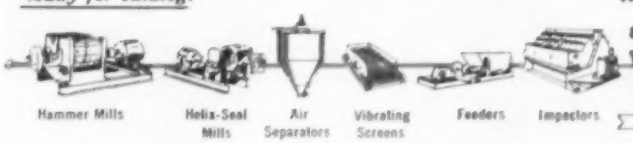
Another Williams advancement! Cutaway shows Type D Mill with Spinner Air Separator with spur gear and pinion drive used on Standard and larger models. Smaller sizes have simple gearless V-belt drive which is easier to maintain than bevel gear drive—cuts labor and downtime.

Bearing alignment of central shaft is simplified with only 2 bearings, the bottom one carrying thrust as well as radical load.

NOTE FLOW OF MATERIAL being ground by rolls rotating against bull ring, then air-swept to separator which discharges finished product while returning coarse tailings for regrinding.

From raw material to finished product—completely automatic grinding, blending and precision classifying to 20 mesh or micron size!

Self-adjusting feed rate . . . instant adjustment for sizing, even while mill is in motion . . . continuous automatic take-up to compensate for wear . . . constant rising air current to prevent build-up of fines and inefficient operation . . . automatically controlled hot-air drying during grinding of moisture-carrying materials . . . all are features of Williams Roller Mills that virtually guarantee increased output, surprising cost reductions and exceptionally high uniform quality. Get all the facts immediately . . . *Write today for catalog.*



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WILLIAMS

CRUSHERS GRINDERS SHREDDERS

Oldest and Largest Manufacturers of Hammer Mills in the World

Enter 1248 on Reader Card

By JOHN J. ECKHART

A Versatile Small Plant

Fine-grinding limestone mill building

Produces Limestone Flour to Fluxstone

SPECIALIZING in the production of finely ground limestone, J. A. Jack & Sons, Inc., Seattle, Wash., has broadened its market to include many other products, ranging from fluxstone for steel mills to chicken grit and agricultural limestone.

This firm is very much of a family affair. John Adam Jack has made sure of his personnel problem by raising his own help. He and his five sons own and operate a limestone plant right next door to the Boeing Airplane Co. on the West Waterway of the Duwamish River in Seattle. Under the general supervision of the father, Clarence, Erven, Roy, Leslie and James run the crushed stone plant.

The mill has been in operation since it was built in 1947. In the expanding markets of the Pacific Northwest, the Jack family has had to increase both the amount and the variety of limestone products to service not only agriculture, but local industries from Everett, Wash., to St. Helens, Ore.

Plant location on the waterway has made it easy to receive shipments of stone by barge. This is high calcium rock from Texada Island, in British Columbia, imported by Hemphill Brothers for J. A. Jack & Sons. The barges, which are spotted on a grid only 60 ft. from the plant, are unloaded by a No. 2 Bucyrus-Erie shovel.

Fines are reduced to 99.4 percent passing 35 mesh, 94 percent through 100 mesh, and 74 percent passing 325 mesh. The limestone flour is shipped by railroad freight car to larger users in the feed industry, and is picked up by truck at the plant by most of the smaller feed mills within the economic orbit of the mill. A large percentage is used in the feed business, but more every year is being used in western Washington as agricultural limestone. The Jacks operate two spreader trucks, and like many producers throughout the country, they give a competent soil service.

The humid area west of the Cascade Mountains in Washington has had very little liming through the years. The local agents are not quick to accept an idea that has been proven its worth so many times east of the "lime" line. It has been a slow educational program that has faced the limestone producers in western Washington. One local agent's office and the A.C.P. office does not consider land that has a pH of over 5.3 worth liming. Due to this the progressive plant must search out other markets and be ready to adjust and service these new markets.

The limestone fines from the Jack plant are also used by asphalt and roofing companies as a mineral filler, under strict state regulations and specifications. This same product is purchased by coal mines in the area for safety dusting.

A quarry run stone is processed and sized for exclusive use in the furnaces of the Northwestern Glass Co. This rock has a low Fe_2O_3 content, which is constantly checked by the plant and by the glass company, as a low iron content is necessary for the production of clear glass.

Always in search of new markets, the limestone company is now producing a limestone grit, which is used in an exclusive chicken feed formula by the Tacoma plant of the General Mills Co.

To increase volume, Mr. Jack was the first in the locality to package an attractive 50-lb. bag of limestone flour for use by the home owner and gardener. The first year has proven that this can be an important market for the limestone flour producer wherever humid conditions exist. It has been readily accepted by Seattle and Tacoma feed, seed and garden stores, hardware stores and even in large supermarkets.

This philosophy, that a small plant can be versatile and used to its capacity, has led also the production of roofing chips from an extra hard white stone, also from Texada Island.

The stone is first dumped into a feed hopper where it is discharged onto a pan feeder. If it is quarry run rock, Clarence Jack stands by the pan feeder to hand pick "dyke" and "country" stone. It then goes to a 24- x 14-in. Cedarapids jaw crusher with the throughs carried by bucket elevator for discharge into a 5- x 42-ft. rotary dryer, which drives off the moisture. This is believed to be the only plant in the area which dries the stone prior to further crushing.

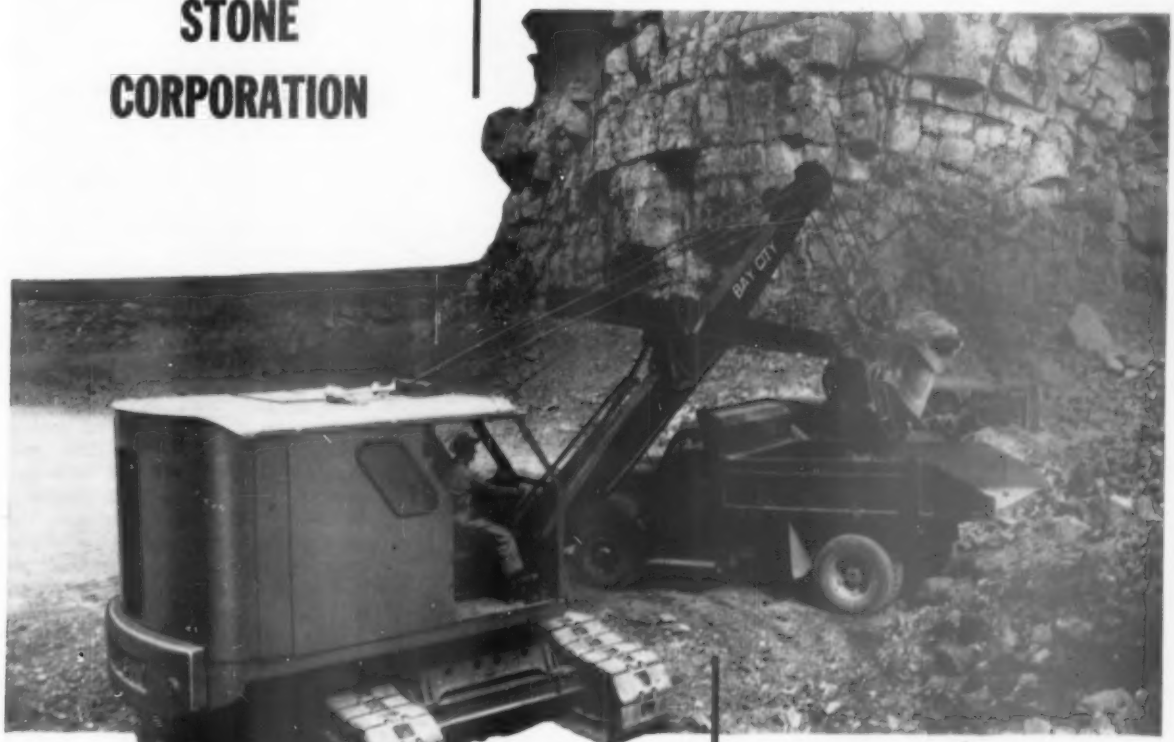
Stone from the dryer goes to another bucket elevator for elevation to a 2- x 8-ft. Lippman five-deck screen. The plus ⅝-in. material is put through a 24-in. Williams hammermill and rescreened. The 8 to 10 mesh from the Lippman screen is a finished product. The minus ⅝-in. material is then run through a 6- x 8-ft. Eimco ball mill in

BAY CITY

¾-YARD SHOVEL handling 800-1000 tons blasted rock per day for the CATSKILL MOUNTAIN STONE CORPORATION

"Our BAY CITY Model 45 shovel with ¾-yard rock type dipper not only averages 800 to 1000 tons of blasted rock per 10-hour day in feeding the crusher, but it also sorts out stones weighing up to 6 tons for secondary blasting," says Mr. W. H. Peckham, President of Catskill Mountain Stone Corporation. BAY CITY doubled the daily production over a former light duty ¾-yard shovel, proving once again that for heavy duty work there's nothing like the tough, powerful BAY CITY. It has double dipper sticks, 3-part line, a 6-foot rotating path, helical cut gears, separate shafts and bearings for each hoist drum, and it is powered by a big 517 cubic inch Waukesha engine. These specifications compare favorably with many 1-yard shovels. Get complete information on the BAY CITY 45 from your BAY CITY dealer.

Write for these catalogs describing BAY CITY *Crawlers of ½ yards and up,* BAY CITY *CraneMobiles and CraneWagons in capacities to 25 tons.*



BAY CITY

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SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS

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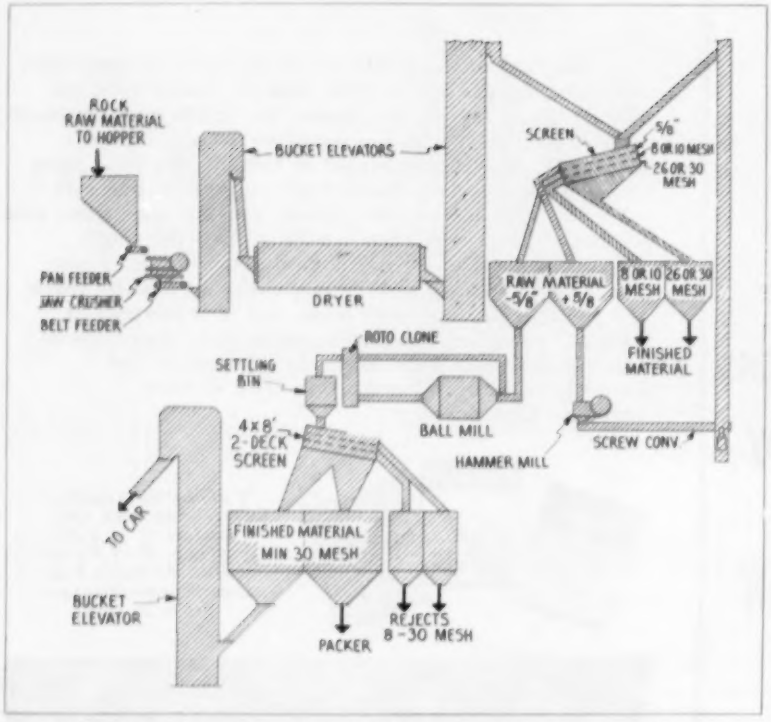

Flow diagram of fine grinding plant designed to produce limestone flour

circuit with an American Air Filter type D roto-clone. The ball mill product is screened over a 4- x 8-ft. Overstrom two-deck screen. From the screen it is chuted into the minus 30-mesh bins and the rejects, 8 to 30-mesh, go to bins for return to the ball mill. The minus 30-mesh bin feeds a St. Regis type 107-FC 2-spout packing machine. Open-mouth bag packing can be accomplished from any other bins by the simple expedient of changing screens to produce materials for any purpose.

Roy Jack operates the shovel, Clarence Jack the dryer, jaw crusher and hammer and ball mill, Erven Jack is in charge of plant and shop maintenance, James Jack is in the plant and Leslie Jack does the truck driving. Each of the boys is capable of handling any and all of the operations of the mill and many times does. They sell every size from large fluxstone for the furnaces of Bethlehem Steel Co., to the finest flour for use in asphalt.

The firm of Hemphill Brothers, Inc., which also has interests in silica and granite quarries, acts as the sales, advertising, promotional and billing agent for J. A. Jack & Sons, Inc.

•

SOUTHEAST SAND AND GRAVEL CO., INC., New Orleans, La., was recently incorporated to operate a sand and gravel business. Capitalization of $25,000 was authorized.

PEA GRAVEL TO SAND

(Continued from page 89)

The Pacific Building Materials Co. dredges material from the Willamette River. Just recently the company took over Cedar Island in the river as a source of supply. Two clamshell cranes, steam-driven, load to a fleet of company-owned wooden barges that are towed downstream to the plant, a haul of about seven miles. At the plant, the barges are unloaded by an American Hoist and Derrick Co. gantry crane mounted about 40 ft. above the water line. The 115-ft. boom of the crane swings a 4-cu. yd. Owens bucket that unloads to a 3-in. spaced "V" grizzly over a hopper that serves the plant.

From the grizzly the throughs now go via a 48-in. Lippman pan feeder to a stub conveyor direct to the Seco three-deck scalper screen. Throughs from this screen are the source of the natural gravel and sand. The plus material from the scalper is one source of crushed gravel. Crushed gravel is kept separate from the natural product and all are washed. The oversize from the grizzly now goes direct to the 10- x 24-in. Austin-Western primary jaw crusher, the discharge of which passes over a vibrating grizzly using an F-55 Syntron vibrator that takes out some of the crushed minus ¼-in. The plus fraction is then moved by belt conveyor to the newer 36-in. Telsmith reduction crusher.

One feature of more than passing interest is that the primary crusher and assembled and related units are mounted high above the water line. One of the older 36-in. Telsmith reduction and the Lippman reduction rolls are also mounted quite high in the main structure and finally the new 36-in. reduction crusher is mounted on a concrete structure some 20 ft. above ground line. Care in the foundation designs of these high operating units has resulted in a minimum of vibration. The plant also features the use of a radial stacker for ground storing material with material reclaimed by a 2-cu. yd. Scoopmobile augmented by a Marion shovel.

The Pacific Building Materials Co. operates a ready-mixed concrete plant at the Curry site as well as in downtown Portland and a third at Vancouver, Wash. The sand dredging operations of the company on the Columbia River below Vancouver were described in ROCK PRODUCTS, June, 1953, page 112.

Frank Penepacker is president of the Pacific Building Materials Co., and M. A. Erland is vice-president and general manager. Howard Hamlin is superintendent of the Curry Street plant, and A. G. Heizenrader is in charge of quality control with a laboratory at Curry Street. Rex Childs is master mechanic. Pierre Hines is consulting engineer.

ALLENTOWN'S NEW OFFICE

(Continued from page 91)

winter, and balanced temperatures are maintained throughout by five thermostatically controlled zones. Generous parking facilities—which had been a very large problem in the downtown location—are available for both employees and visitors, and carefully-planned landscaping enhances the over-all attractiveness of the site. The firm of Lovelace and Spillman of Bethlehem, Penn. was the architect, and general contracting was handled by A. Newton Bugbee, Inc., Catasauqua, Penn.

A look at the new Allentown building is highly recommended to rock products' industry visitors passing through the Lehigh Valley—both as an effective example of concrete design and as an illustration of what can be done to showcase their end product.

•

ISRAEL HAS EXPORTED more than a million bags of cement to the United States since the trade was begun in 1955. The millionth bag was delivered July 12, 1956.

Production Was Slow

It took only one man with a primitive wheelbarrow to haul away the production of this seventeenth-century grinding mill. For all of its grinding was accomplished by just four iron-headed stamps.

Today's grinding is as fast as yesterday's was slow. The modern mill produces many tons of ore in a single day, thus making possible our "metal age" civilization. This amazing production is possible largely because modern mills utilize efficient grinding media like the grinding balls and grinding rods produced by CF&I. Since they are always produced from special analysis steels that have the proper balance between toughness and hardness, CF&I Grinding Balls and Grinding Rods assure optimum grinding ability and maximum wearing ability.

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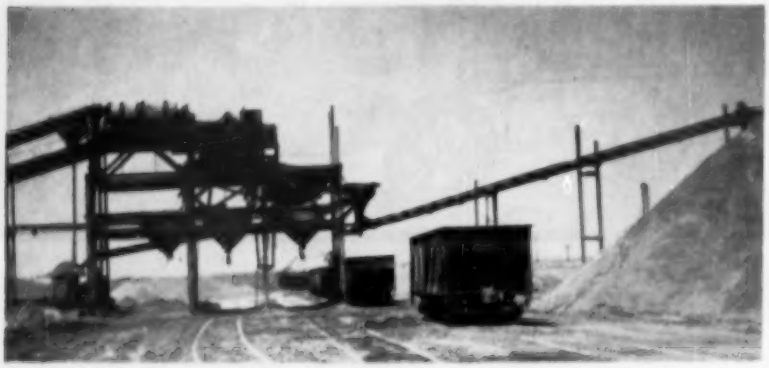
View of Tascosa plant which includes a 35-ft. log washer, 167-ft. belt conveyor to 72-in. x 14-ft. scrubber and 4- x 12-ft., triple-deck vibrating screen, to the left

Two-Way Radio Ties In Two Plants With General Office

By HUBERT C. PERSONS

TWO EFFICIENT SAND AND GRAVEL PLANTS are operated under the same ownership by Western Aggregates, Inc., at Tascosa, and Western Sand & Gravel Co., at Channing, Texas. Two-way radio permits close contact with activities at both plants from the general offices in Amarillo, Texas.

The newest plant, located near the old frontier town of Tascosa, has very complete washing, screening and classifying equipment to produce sand and gravel meeting any specification requirement. The older Channing plant also is equipped to produce quality products. Both plants are fortunate in having ample supplies of water from wells for washing and classifying purposes.



Three 20-cu. yd. loading hoppers at Tascosa plant are located over the railroad siding

The Tascosa sand and gravel deposit is 3½-miles from the plant on Highway 51. A 1½ cu. yd. Northwest Model 6 dragline is used for stripping the overburden and also for loading into trucks. Overburden is shallow, varying from 6-in. to 3 ft. in depth. The stream deposit varies in thickness from 10-ft. to 25-ft. and is estimated to be in sufficient quantity for at least a 20-yr. period.

In size the material ranges from sand to 6-in. diameter boulders. It is hauled to the plant by a fleet of six, 10-cu. yd., Model 42, six-wheel Mack end-dump trucks. These trucks handle from 1100 to 1500 cu. yd. per day.

At the plant the gravel is dumped over a grizzly into a receiving pit. From the pit a 24-in. conveyor belt carries the gravel to a 4000 cu. yd. surge pile. From a reclaiming tunnel under the surge pile another 24-in. conveyor belt carries material to a 4- x 12 ft. Cedarapids double-deck scalping screen. The plus 1½-in. gravel from the top deck of the scalping unit is fed to a 9- x 36-in. Cedarapids jaw crusher. The minus 1½-in. material drops to a 24-in. belt conveyor which takes it to a 35-ft. Eagle log washer.

The log washer discharges to a 30-in. belt conveyor which carries the material 167-ft. to the top of the plant and into a 72-in. x 14-ft. Ingram rotary scrubber. From the scrubber the gravel goes to a 4- x 12-ft. three-deck vibrating screen which both

Sand and gravel from Tascosa receiving pit moves over inclined belt conveyor to 4000-cu. yd. surge pile, to the right

⅓ MORE PRODUCTION . . . ⅓ LESS MAINTENANCE . . . ¼ LOWER FUEL COSTS

With MURPHY DIESEL POWER

"Our Murphy-powered crusher is averaging 1200 yds. of minus 1¼" crushed limestone per day . . . definitely higher production than we ever got before using Murphy power. We operate 9 hours a day, 5½ days a week, and this Murphy Model 22 *has been running since 1953 with minimum attention.* For continuous duty under heavy load, and for general all-around good performance and economy, Murphy Diesels just can't be beat!"

V. L. Greenwell, Partner
WATERS CONSTRUCTION CO.
Decatur, Alabama

When it comes to heavy-duty power for aggregate plants, shovels, draglines, generators, pumps, compressors, etc., Murphy Diesels are recognized throughout the construction industry for their dependability, long life, trouble-free service and economy that's unmatched by any other engine of comparable size. Why don't you put the many exclusive advantages of Murphy Diesel engines to work on your next job? Your Murphy Diesel Dealer can tell you how they'll make more money for you.

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MURPHY DIESEL

Heavy-Duty Power
for Rock Crushing

Murphy Diesel engines and power units are available in sizes from 96 to 264 H.P. with engine speeds of 1200 and 1400 rpm. "Packaged" generator units are available with capacities ranging from 64 to 165 K.W.

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BITES DEEPER DUMPS FASTER

PROMPT SERVICE AVAILABLE

Factory service on Kiesler Buckets and as an accommodation on other makes, too. Whatever the problem, feel free to call on us.

Whether you need to rehandle or excavate, you will move MORE IN LESS TIME with a KIESLER CLAM SHELL. Our guarantee (see below) is the result of decades of experimentation and factual impartial testing; using *proven* principles of leverage and power and applying that power and leverage to *both* shells the KIESLER CLAM SHELL has more DIGGING-IN ability than any other bucket manufactured. And this digging ability is not dependent on dead weight (counterweights) nor large amounts of cable, hence longer cable life.

Note, too, how little KIESLER shells have to be opened to dump whole load: no "tailing-off" with a KIESLER. This is CONTROLLED DUMPING!

GUARANTEE

Kiesler Buckets are guaranteed to outperform and do a bigger day's work than any other Bucket of equal weight, width and size, when properly reeved and operated.

JOS. F. KIESLER CO.

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Since 1892

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rinses and sizes it. The plus 1½-in. gravel drops to an 18-in. return belt conveyor feeding into an 18- x 30-in. Cedarapids roll crusher. The crusher discharges to the 30-in. belt leading to the scrubber. This arrangement gives the oversize two scrubbings.

Minus No. 4 mesh material from the bottom deck of the sizing screen goes to an Eagle five-port classifier. Sand of sizes not wanted goes to a sump from which a 5-in. Wilfley pump discharges it into a waste pond. Sand in wanted sizes goes to an Eagle screw conveyor which discharges directly into rail cars or onto an 18-in. stockpiling belt conveyor, 120 ft. centers. The bulk of the plant production is sold for concrete aggregate, the coarse material ranging in sizes from 1½-in. to ¼-in. and the sand in sizes from No. 4 to 200 mesh. Quality of production is checked several times a day by sieve analyses, sedimentation and silt tests made at the plant.

About 75 percent of the plant's production is shipped by rail. Truck deliveries are made by contract haulers. Although in periods of heavy demand as many as 40 trucks may be required, most of the truck deliveries are handled by four 15-cu. yd. International trucks, supplemented by two 5-cu. yd. hydraulic dumping Chevrolets and one White cable dump truck.

Mobile equipment used around the plant includes a ¾-cu. yd. Model 25, Northwest dragline and a 1-cu. yd., Model 34 Lima dragline. These are used for loading contract trucks, loading and unloading rail cars and for stockpiling. About 25,000 cu. yd. of material in various sizes is maintained in stockpiles.

Two 600 g.p.m. capacity wells supply the 1200 g.p.m. of water required in normal plant operations. The availablity of water and the increasing demand for aggregate were factors influencing the establishment of the plant in 1953.

The plant employs 16 men. Two others work at the pit in addition to six regularly employed truck drivers. Supervisory personnel includes P. E. Edwards, superintendent, L. A. Edwards, plant foreman and J. F. Picture, office manager and bookkeeper.

P. E. Edwards is also superintendent of another sand and gravel operation, under the same ownership, but conducted under the name of the Western Sand & Gravel Co. This is known as the Channing plant. It is located at Jude Switch, 7 miles south of the town of Channing, also on Texas Highway 51. The plant has been in operation since 1940.

(Continued on page 126)

Enter 1266 on Reader Card

A.R.B.A. ROAD SHOW AND CONVENTION

What you'll hear there!

THE ARBA CONVENTION

will open Monday morning, January 28, 1957, with suitable ceremonies. For five days you will have the opportunity of attending the greatest seminar on roads and road construction ever gathered together. Every effort has been made to secure people of importance and authority to talk to you on the critical subjects of the industry.

You will hear:

- Senator Albert Gore of Tennessee
  Chairman of the Senate Sub-Committee on Roads
- Senator Dennis Chavez of New Mexico
  Chairman of the Senate Committee on Public Works
- Rep. George H. Fallon of Maryland
  Author of the Highway Bill and
  Chairman of the House Sub-Committee on Roads
- Senator Francis Case of South Dakota
  Ranking minority member of the
  Senate Sub-Committee on Roads
- Rep. Charles Buckley of New York
  Chairman of the House Sub-Committee on Public Works
- Rep. J. Harry McGregor of Ohio
  Ranking minority member of the
  House Sub-Committeee on Roads

—and many other well-known authorities on the Road situation. These men have played a great part in the formation of the coming road program. No group knows the subject better.

Technical Sessions will begin Monday at 1:30 P.M. and *You will hear:*

- W. A. Warrick, Consulting Engineer of the John Clarkson Co. of Albany, N. Y.; and K. B. Woods, Head of the School of Civil Engineering, Purdue University. They are outstanding authorities on "The Design of Rigid Type Pavements."
- Fred F. Florence, President of the American Bankers Association (Republic National Bank of Dallas, Texas) will speak on "The Bankers' Part in the Accelerated Federal Aid Road Program."
- A. E. Johnson, Executive Secretary, American Assn. of State Highway Officials, Washington, D.C., talking on "State Financing of the Road Program."
- A. C. Clark, Deputy Commissioner, Engineering Div., U. S. Bureau of Public Roads. His address will be, "Engineering the Accelerated Road Program."
- George M. Foster, Chief Deputy Commissioner, Michigan State Highway Department, East Lansing, Michigan, will talk on "Building Roads with Modern Engineering Methods."

Other important subjects will be discussed by Nationally Known Experts.

- James W. Spencer, Highway Research and Extension Engineer, Department of Agricultural Engineering, Cornell University. President, Educational Div. of ARBA. He will discuss, "Keeping Highway Engineering Education Abreast of Modern Techniques."
- Fred Burggraf, Director, Highway Research Board, Washington, D. C., will give a report on "AASHO Illinois Test Road."
- J. E. Buchanan, President, The Asphalt Institute, University of Maryland, will give an address—"Bituminous Materials for Pavement Construction."
- C. Homer Cash, Road Engineer, Michigan State Highway Department, Lansing, Michigan, will talk about "Reinforcing Concrete Design Practice in Michigan."

There will be panel discussions on the many problems of the engineer and contractor. Photogrametry, electric computors, traffic problems, maintenance, bituminous pavement construction, stabilization, financing, illumination and related subjects will all be treated in detail.

This is just a small part of the total program. MAKE YOUR PLANS TO ALLOW SUITABLE TIME TO ATTEND THESE IMPORTANT SESSIONS.

Jan. 28—Feb. 2, 1957

INTERNATIONAL AMPHITHEATRE

CHICAGO

TWO-WAY RADIO

(Continued from page 124)

The Channing pit, which is 2½-miles from the plant, has about the same type of material as in the deposit supplying the Tascosa plant. Overburden, 2 to 6-ft. thick, is removed by a 1½-cu. yd. Lima, Model 604 dragline. Material is hauled from pit to plant by two 20-cu. yd. Euclid six-wheel trucks and trailers, two White trucks and a six-wheel, cable-dump Schoenrock truck.

At the plant the material is dumped through a hopper to a 24-in. Link Belt belt conveyor which feeds a 4- x 12-ft. Cedarapids double-deck scalping screen. The plus 1½-in. gravel goes by gravity into a 37½-in. Kennedy-Van Saun gyratory crusher which reduces it to minus 1½-in. From the crusher the gravel is discharged to a 24-in. belt conveyor, 130-ft. centers, which takes it to a 72-in. x 14-ft. Ingram rotary scrubber. From the scrubber it is discharged on a 4- x 14-ft. Allis-Chalmers triple-deck screen where it is sized and rinsed. Any plus 1½-in. material falls to a 24-in. belt conveyor feeding into a 22- x 30-in. Cedarapids roll crusher. This crusher is set to reduce the material to any desired size.

The Channing plant ships both by rail and by truck. A 1-cu. yd. Model 34 Lima crane and a ⅝-cu. yd. Schield Bantam crane are used around the yard for stockpiling and general yard needs. The Channing plant employs 22 men including drivers and pit men. Craig Childers is plant foreman.

Combined production of the Channing and the Tascosa plants averages 550,000 tons annually.

Communication between the two plants, the general office in Amarillo and the automobiles used by General Manager W. T. Griffin and Superintendent Edwards, is provided by Motorola two-way radio.

Officers of both Western Aggregates, Inc. and the Western Sand & Gravel Co. are: A. R. Bivins, president; W. W. Gibson, vice president; Mrs. Alice Sullenberger, treasurer; and W. T. Griffin, secretary and general manager. General offices of both companies are at 96 Polk Street, Amarillo, Texas.

TURNPIKE PLANT

(Continued from page 95)

For weighing rail cars, the company uses a 53-ft. track scale with a 300,000-lb. capacity; it is mounted below the two bins. Cars are spotted and moved by a winch-operated car mover. The rail siding can accommodate 30 empty and 30 loaded cars. To handle truck shipments for local markets, each bin is equipped with a 30-in. off-bearing conveyor, 30-ft. centers.

Water for washing is supplied from the Marais Des Cygnes River adjacent to the plant by a 5-in. Gardner-Denver pump (60-hp. drive). The pump is mounted on rails and lowered down the 40 ft. bank into the stream by means of a hand winch. With this arrangement the pump easily can be lowered or raised according to the water level, which on occasion fluctuates rapidly. Tailings are removed by means of a 4-in. Mission pump.

Ralph Wolfersperger is superintendent of the Ottawa plant.

Television Saves Money

(Continued from page 81)

eyes of a TV camera in the molding of continuous castings of steel billets. Here, the mold must always be kept filled to a certain specified level, and a camera can observe the level and pouring operation regardless of heat and smoke. In another steel mill, RCA television equipment is used for continuous tin plating for travels at speeds up to 1500 ft. per min. This enables inspection and close supervision of a production rate which needs utmost protection against costly errors.

When the camera units are to be installed in an exceptionally hot or dusty position a small motor-driven blower and filter are housed in the pedestal base in order to circulate a supply of cool clean air through the unit. Another optional fitting is an automatic alarm to give a warning in the event of failure of the equipment.

The interest of users of closed circuit television is focussed today on two future uses: stereoscopic (three dimensional) and colored television—both closely applicable to modern industry. It is futile now to attempt to predict general availability of these developments because many problems remain to be solved—chiefly the present high cost. However, there are already some industrial applications of both. Chemists of the Atomic Energy Commission are using stereoscopic pictures for obtaining a life-like three-dimensional view of remote electrical and mechanical devices handling radio active substances behind protective barriers. The camera is fitted with two lenses which are scanned in the normal way after two slightly different pictures have been focussed side by side onto the photo-sensitive surface of a single camera tube. Viewed through a pair of lenses, a three-dimensional picture is obtained. Stereoscopic viewing is also used in rocket proving grounds and other military operations of the U. S. Air Force. A typical application of color TV was a demonstration of a new ramjet engine for aircraft at Cleveland, Ohio. Close-ups of the exhaust end in natural colors, as televised by a Dumont color camera, were shown clearly on a monitor screen.

The possibilities of wired television in the rock products industry can be summarized thus: Where the nature and commercial value of materials warrants a higher expenditure for supervision and safe operation, or where the handling activity is either too dangerous, too remote and inaccessible for direct viewing, the television camera and monitor afford an effective and convenient answer.

Front End Loaders Used In Gravel Excavation

American Stone Products Co., Clarkston, Mich., currently operating a 1000-cu. yd. per day gravel plant on a 45-acre site near Drayton Plains, Mich., is utilizing two Frank G. Hough Model HO Payloaders for all of its stripping, excavating, loading and materials handling. The two Hough machines are the only engine-driven equipment at the plant. The pump, crushing and screening equipment and conveyor are all electrically powered.

Wilson Brisbois, owner of the company, usually keeps one of the Payloaders, with a 2¼-cu. yd. bucket, in the pit excavating the material and loading it into the hoppers feeding the 24-in. conveyor belt. About 120 cu. yd. per hour of unclassified material is carried to the washing and screening plant. The other Payloader, having a 1¾-cu. yd. bucket, works on top, filling the trucks. Working alone, it takes 10 min. to load 26 cu. yd. The two Payloaders can do the same job in 2 min., said Mr. Brisbois.

The 2¼-cu. yd. tractor-shovel, shown loading the hopper which feeds the conveyor belt at the gravel plant

Travels wherever you want it. Schramm Pneumatractor Rotadrill eliminates separate compressors and wagon drills in Nally & Boone Quarry at Greensburg, Ky. Mounted on a Schramm Heavy Pneumatractor, the Rotadrill has almost unbelievable maneuverability—goes almost anywhere. Sets up in minutes, too, and can drill a 4¼" hole or smaller to a depth of 500 feet with 10,000 pounds down pressure. Mast lowers for traveling between jobs.

Convenient, simple one-man operation. Drilling controls are mounted in one bank, with pressure regulator and hydraulic gauge for controlling down feed. Separate valves control each outrigger, forward and reverse rotation motor, slow down feed, rapid down feed and breakout motor. Fast vertical action of rotative head serves as pipe hoist for adding pipe or pulling drill string. Outside spindle is flanged to take various drill pipe adaptors.

KENTUCKY QUARRYMEN SET RECORD FOR ECONOMY

Drill 830 feet in 4-day test at drilling cost of 4½c per ton

The figures at the right show what happened at the Nally & Boone Quarry, Greensburg, Ky., in a 4-day test of rotary rock-drilling with compressed air. Working in hard limestone, a Schramm Rotadrill mounted on Heavy Pneumatractor drilled 13 holes with a total footage of 830 feet. Approximate drilling cost per ton was 4½c.

One reason for this record is Rotadrill's speed in making hole; increased penetration rates of 55% to 66% are reported in hard limestone areas. Another reason is the easy maneuverability of the self-propelled Pneumatractor; it goes almost anywhere under its own power. Still another is quick set-up; simply raise the mast, level the rig, attach bit—in a matter of minutes.

One-man operation brings real economy to drilling with Rotadrill on Pneumatractor. So does the elimination of superstructure and labor of erection. Also, bit life is 35% to 300% longer than with other types of rigs. And, finally, Schramm Pneumatractor Rotadrills can operate 24 hours per day for months on end. For real speed and efficiency in drilling blast or toe holes, choose Schramm Rotadrill—mounted on truck or Pneumatractor.

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Look at the savings Nally & Boone got with their Pneumatractor Rotadrill.

13 holes, total footage 830 ft.

32 hours labor @ 1.25	$40.00
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190 gallons of gas .30	57.00
Bit cost	207.50
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Total	$392.85

Cost per foot total elapsed time .473

Drilling cost per ton—9 holes on 12′ centers 4-4/10 cents

Drilling cost per ton—4 holes on 10′ centers 4-7/10 cents

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Members and guests of the association on inspection trip

Technical Advances In the Lime Industry

Revealed at Operating Division Meeting of N.L.A.

THE MEETING OF THE OPERATING DIVISION, National Lime Association, Springfield, Mo., October 10-12, drew a record crowd to hear a well-prepared program that included important discussion of operating problems. About 130 lime company operating personnel, association representatives, and guests registered at the Kentwood Arms Hotel in Springfield. An estimated 30 ladies were on hand to participate in a scenic tour of the Ozarks the first day, a special luncheon and an all-together banquet on the second day.

Paul Sunderland, chairman of the board, Ash Grove Lime and Portland Cement Co. of Kansas City, Mo., was meeting chairman. The program, which was acclaimed as one of the best and well organized ever held by the association, was arranged under the chairmanship of C. E. Baxter, Jr., superintendent, Ash Grove. His committee members included Russell W. Hunt, president, Southwest Lime Co. of Neosho, Mo., and Robert R. Ruetschi, general manager, Batesville White Lime Co., Batesville, Ark. Ash Grove acted as host to the meeting. The group gave Mr. Sunderland and Mr. Baxter an expression of gratitude for the extreme hospitality extended by Ash Grove.

The meeting opened with a conducted tour of the Springfield plant of Ash Grove, then an inspection trip to the company's Galloway quarry. At the quarry, the group had an opportunity to inspect and see in action a new "down-the-hole" Ingersoll-Rand quarry drill, and a quarry blast that brought down 70,000 tons of material. Those in the touring group were guests of Ash Grove at a special luncheon served in one of the buildings at Galloway plant. During the luncheon, the company provided a TV set so that the group could see the remainder of the last game of the World Series.

The tour followed in the afternoon with a visit to Ash Grove's modern Galloway plant, where two Priest vertical kilns are installed. Each kiln is equipped with semi-automatic charging, has a diameter of 14 ft. 3 in. inside the brick work, and has an active height of 62 ft. from the bottom of the cooling zone to the top of the preheat zone. Overall height of each kiln from the ground is 128 ft.

Paul Sunderland, Ash Grove chairman of the board, was chairman of the operating meeting

After the tour of the plants and quarry, the ladies joined the men for a ride to Riverside Club in Ozark, Mo., for cocktails and dinner.

The meeting got down to serious discussion of operating problems on Thursday morning at a session presided over by Mr. Baxter. He introduced Lee Niems of Marblehead Lime Co., Chicago, Ill., who talked on his company's experience in the development and use of rotary kiln coolers. He delved into the theory of direct contact coolers and used slides to show construction of a pocket cooler. It handles up to 300 t.p.d., has a low first cost, is compact in size and requires little maintenance. According to Mr. Niems, material is drawn from the kiln into the pocket cooler where it is retained for 30 min. while air is passed up through the material into the kiln. Temperature of the material as it leaves from the cooler is such that it can be held in the hand without difficulty.

Mr. Baxter introduced Clarence Stielstra, Dow Chemical Co., Ludington, Mich., who discussed his company's experience with rotary kiln coolers. Having had good experience with a direct-contact cooler designed by Azbe Corp. and installed on one of the company's two kilns in 1950, Dow Chemical took a look at latest developments before designing a cooler for the other kiln. Investigation

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A 6-yd. 150-B loads a hauling unit at a limestone quarry near Marblehead, Ohio.

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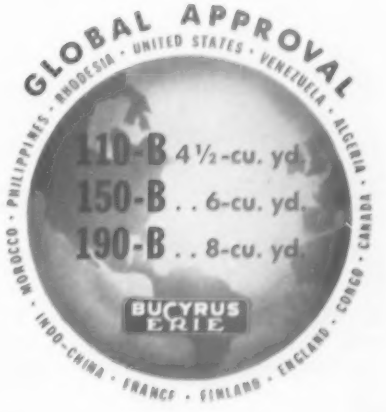
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Opening session speakers, left to right: Clarence Stielstra, Dow Chemical; Ian Smellie, Hall Engineering; R. C. Allen, Allis-Chalmers; and Lee Niems, Marblehead Lime

Second session speakers, left to right; W. G. Smith, Fred Witmer, R. W. Hunt (presiding), Prof. J. A. Murray, and Victor J. Azbe

showed a preference for a single pocket cooler, one of which was designed and placed in operation in 1952. Its operation has lived up to expectations. It has given good service with minimum attention, and maintenance has been reasonable. An improvement in heat savings has been obtained through its use.

A paper on the Priest vertical kilns installed at the Galloway plant of Ash Grove was given by Ian Smellie, Hall Engineering Co., Toronto, Canada. Mr. Smellie has been a visitor with Ash Grove for four years, in developing the kilns and watching their operation. The kilns were built as twin units, and each was designed to burn either natural gas or light oil. He described the semi-automatic charging system, then followed down the kilns through the storage, preheat, burning and cooling zones. Also described was the brick lining, burners, fuel systems, fans and instrumentation. The latter is complete, so that the kiln operator can operate two kilns with minimum effort. Mr. Smellie pointed out, however, that educated judgment also plays an important part in successful operation of the kilns.

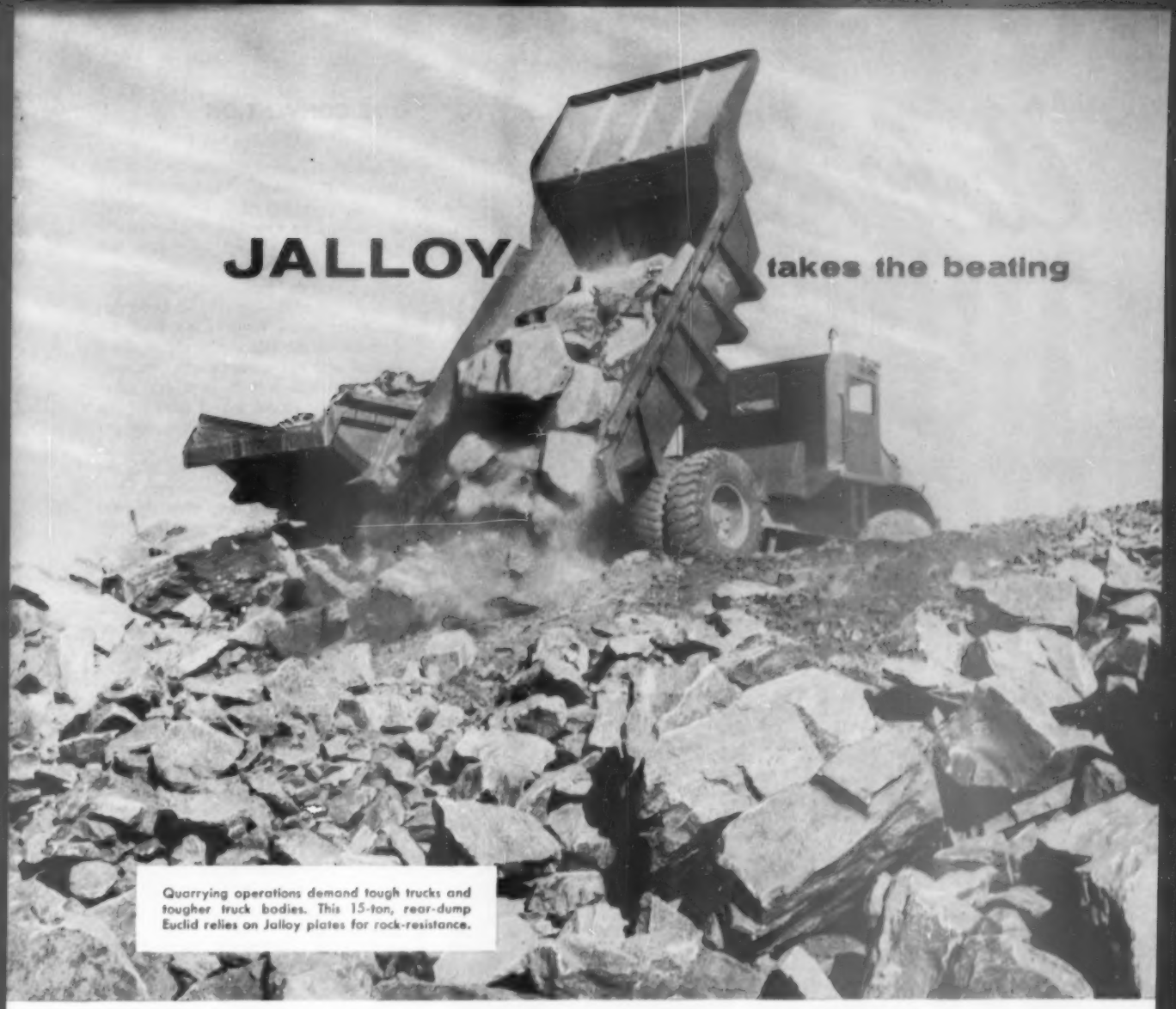
Winding up the Thursday morning session was an interesting talk on "Power for Tomorrow," given by R. C. Allen, director of mechanical engineering, Allis-Chalmers Manufacturing Co. He posed a good question: "Why go ahead with the development of nuclear power when cost of power plants is 3-4 times that of coal plants and the cost of power produced is 6-7 times that from coal?" He provided the answer by pointing out that this country's demand for electric power will double by 1980. Because figures in annual B.t.u. consumption run so high, he used the term "Q" to represent 10^{15} B.t.u. One Q, he explained, is the amount of heat from 38 billion tons of 13,000 B.t.u. coal. He stated that the heat content of recoverable fossil fuels at a 50 percent higher cost than now, compared with world demand for energy in 1980, shows a possible life of fossil-fuel energy to be something less than 50 years. From that standpoint, it is important now to develop other sources of energy. Mr. Allen believed that we would have economical nuclear power plants in the future.

After luncheon in the Kentwood Arms Hotel, an operating movie of a Fluopacker packing machine was shown through the courtesy of Burton Ford and the St. Regis Paper Co. Russell W. Hunt, president of Southwest Lime Co., presided over the afternoon meeting. Victor Azbe, president of Azbe Corp., St. Louis, Mo., presented a slide lecture on "Recent Developments and Future Possibilities in Lime Manufacture." He covered the history of lime kiln installation in the U. S., beginning with the first application by Ernst Smatolla in 1895. Mr. Azbe collected data on early plants 35 years ago, and has continued to study installations. He showed by comparison chart how developments have been made in kiln design to improve fuel efficiency and other factors. A description of the Azbe Integrated Lime Kiln System was followed by the speaker's discussion of kiln operating theory and possible projection of possibilities for advance in the future.

W. G. Smith, production manager, Gypsum, Lime and Alabastine, Canada, Ltd., of Toronto, Canada, reported on "Small Stone Vertical Kiln Development." He traced the history

(Continued on page 132)

Three safety trophies were awarded by ROCK PRODUCTS. Left to right: Arnie Sundhom, Dow Chemical; K. A. Gutschick of N.L.A.; and Gordon Lacy, U. S. Gypsum



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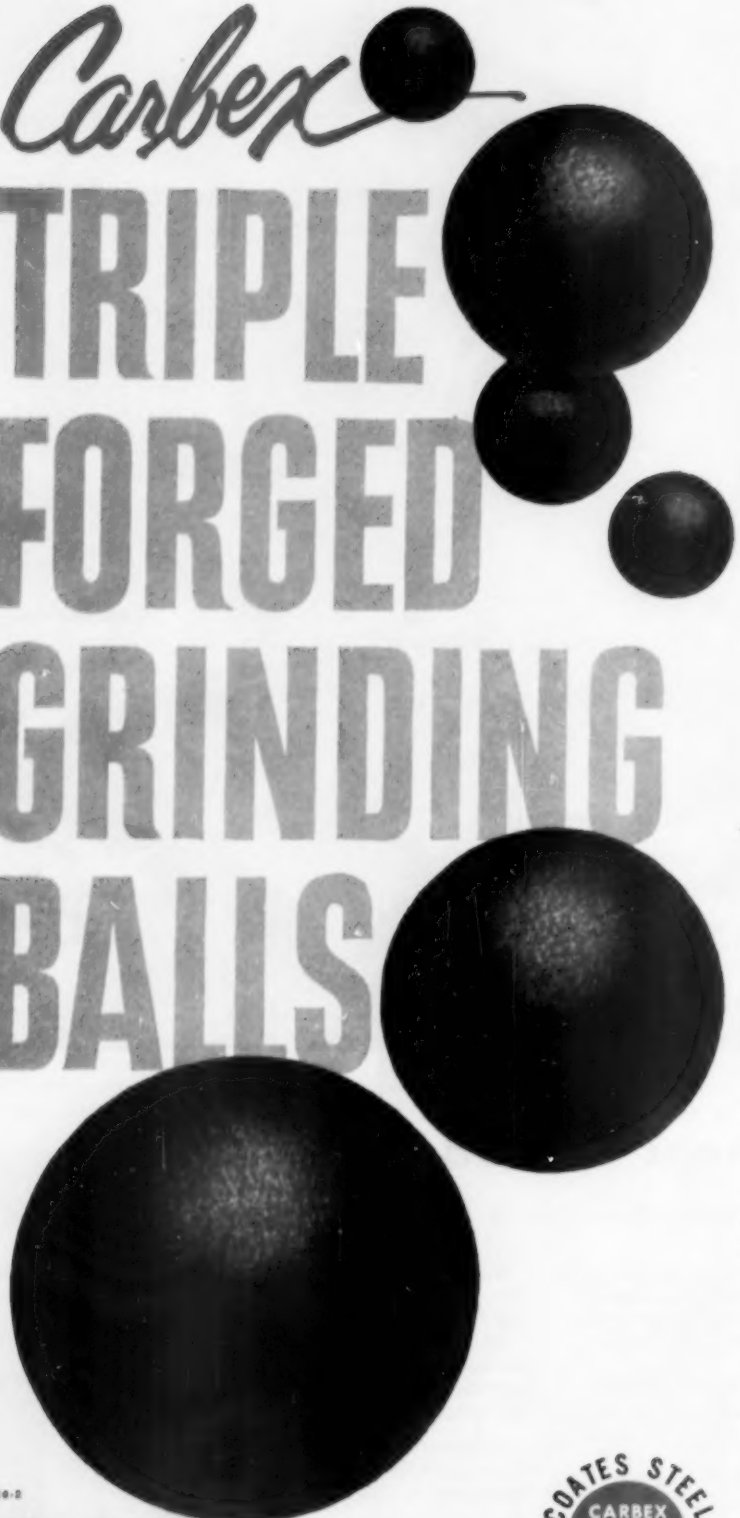

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LIME CONVENTION

(Continued from page 130)

of company development up to a 4-shaft kiln plant. Market surveys showed a surplus of 2- to 4-in. stone, so a new kiln was designed to handle stone in the 1¾- to 3½-in. size. His talk included a relation of the accomplishments that had been made in the design of vertical induced-draft small-size stone kilns, a physical description of the kiln and cooler now installed, and operating results obtained. The shaft kiln is 9 ft. in width, takes 140 tons of stone, travel time of the stone is 18 hr., and lime produced per day is 174 tons.

A "Report on Survey of Modern High-Speed Drilling Techniques" was given by Fred Witmer, general manager, Ohio Lime Co., Woodville, Ohio. He first pointed out the importance of drilling cost to lime production by stating that a one cent per ton reduction in cost of lime can be effected with each reduction in cost of drilling of 15¢ per ft. Various types of drills were discussed, accompanied by slides to show operating conditions under which each worked. In general, he summarized: drills can be purchased for $1.00 per lb.; more important than the drilling machinery is the need for a good operator; there is no question about drilling limestone with rotary drills; the main problems are to supply the proper bit, enough pressure on the bit and sufficient air; there is no set rule for selecting a drill, since each application is an individual problem.

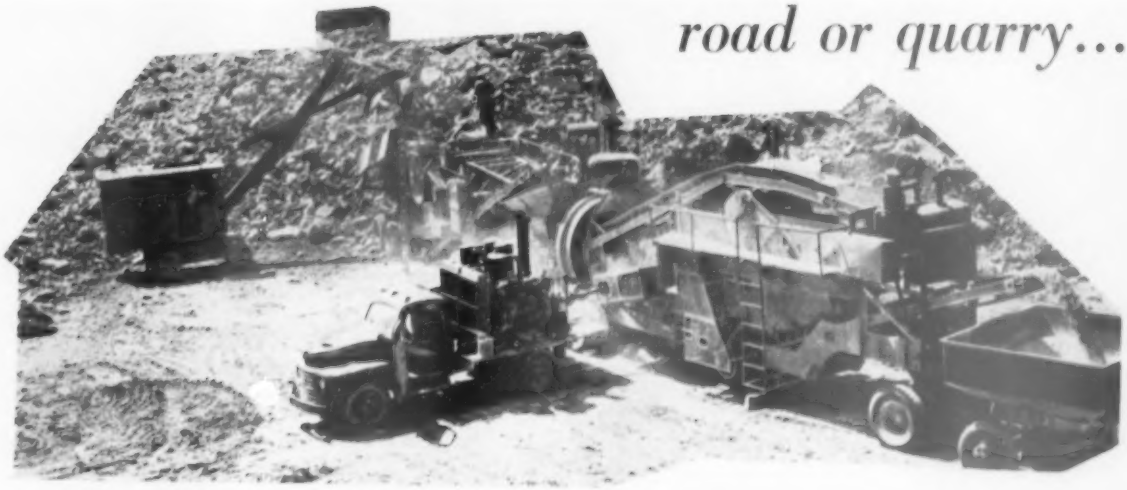
Prof. James A Murray, M.I.T., Cambridge, Mass., in his report on "Fundamental Lime Research Developments," stated that it is not yet clear what the future will bring in the processes of burning and hydration of lime. He posed the question: "Is equipment flexible enough" to do with it what you want to do? He traced the historical market situation, pointing out that the chemical industry is the one to watch. "Customers," he said, "are demanding more quality controls." Alterations in quality can be made by changing manufacturing methods, which will answer sales resistance to customer's demand for quality.

The banquet Thursday evening was highlighted by an address of the Hon. Dewey Short, Congressman from the 7th Missouri Congressional District for the past 12 years, on the Ozark region. Local musical talent provided excellent entertainment.

At the final session Friday morning, Robert R. Ruetschi, general manager of Batesville White Lime Co., presided. A scheduled address on a survey

(Continued on page 148)

road or quarry...



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Impeller Bars, Breaker Bars and Liner Plates of extra tough Amsco Manganese Steel reduce wearing action.

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Amsco Manganese Steel crusher parts, made of "the toughest steel known", give a much longer life span to these main wear points. This extra-tough steel work-hardens under impact. Abrasion polishes manganese steel, and yet it retains high-ductility qualities.

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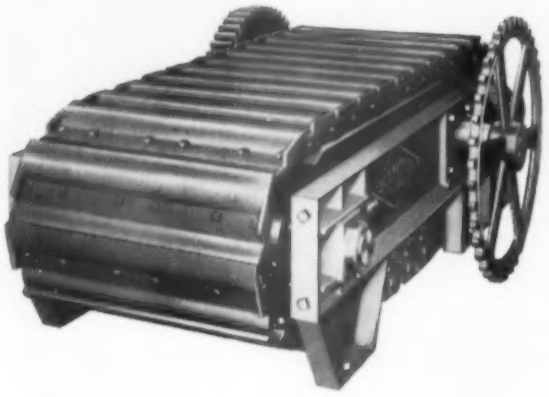

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For feeding lighter materials such as sand and gravel, the Diamond Plate Feeder is unmatched. At installations of portable and stationary crushing plants, and for feeding onto conveyors, these units provide correct flow of material to keep the operation running smoothly.

Properly balanced construction makes for durability; and the five-position adjustable stroke is a Diamond bonus.

Single or double eccentric types are available, all in 5-foot lengths. A choice of widths to suit the job: 16″—20″—24″—30″—36″—42″.

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All-Together dinner, National Industrial Sand Association Fall meeting

N.I.S.A. Fall Meeting Draws Record Attendance

New procedure of open discussion in committees prior to presentation of subjects at later sessions increased value and interest of National Industrial Sand Association, White Sulphur, Va. meetings

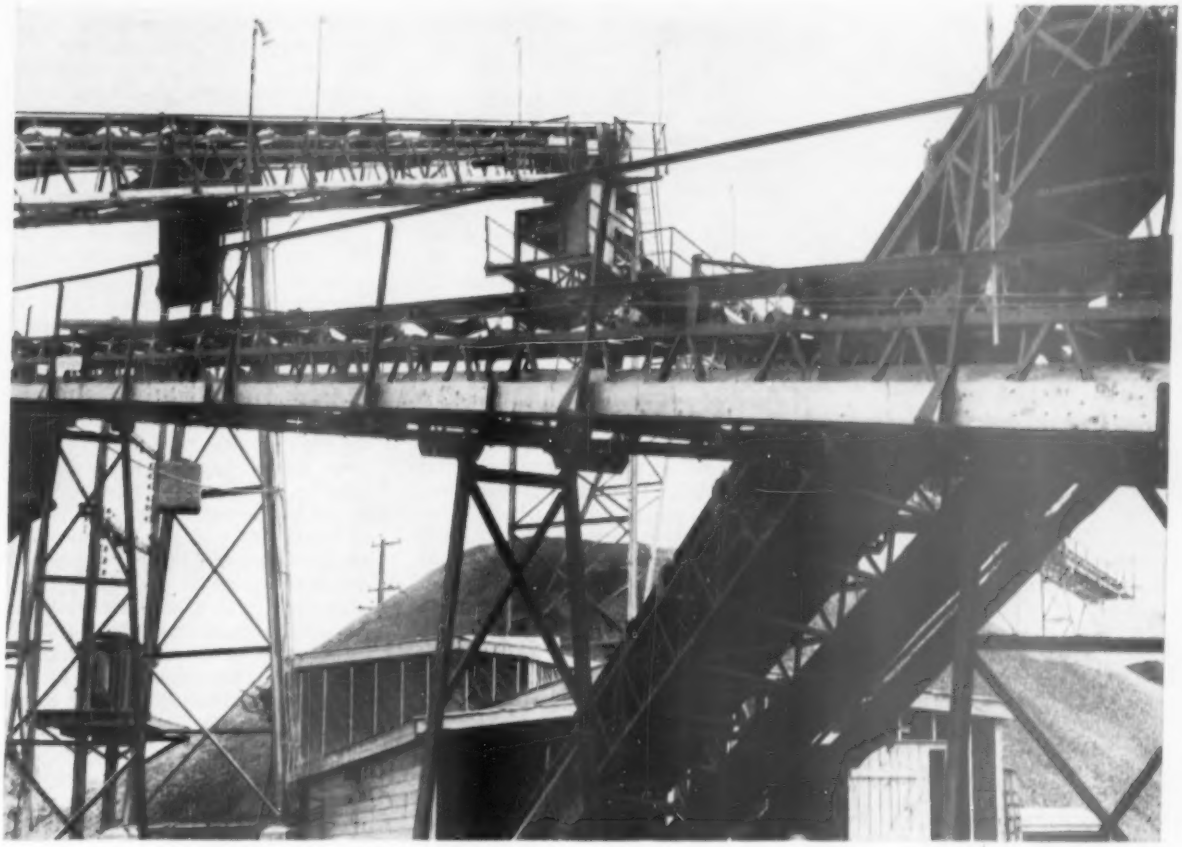
AN EXPERIMENT in meeting procedure was tabbed as successful by the National Industrial Sand Association during its semi-annual meeting at White Sulphur Springs, W. Va., October 16-19. For the first time, business of the association was pre-discussed on a committee-meet basis during the opening business session. Each of six committees was assigned a separate meeting room, and individual committee chairmen held open-discussion meetings on the business pertaining to his group. All were invited to sit in on any session, according to their major interests. Membership on the committee was not a condition for attendance. Three of the groups—taxation, fineness and grading, labor—met simultaneously from 9:30 to 11:00 a.m.; three additional committees—Navy sand-blast specifications, health, traffic—met separately from 11:00 a.m. to 12:30 p.m.

The new-type program was believed by most to have contributed to the value of the meeting. It received a good test, for attendance was the largest for any Fall meeting in the association's history. About 110 members, association staff representatives and guests, including the wives, attended the Greenbrier meeting.

Tenor of the group-meet approach carried through to the Thursday and Friday morning sessions. At those times, the full meeting was addressed by each committee chairman who summarized the business discussion and findings of the individual group sessions. In addition, an excellent presentation of "Basic Insurance for a Silica Sand Company" was given by Frank C. Wachter, secretary of Pennsylvania Glass Sand Corp., on Friday morning. Also at that time, the entire group was given the opportunity to hear V. P. Ahearn, executive secretary of the association, deliver his unusually interesting "Washington Report."

Emery M. Durstine, The Keener Sand and Clay Co., Columbus, Ohio, and president of N.I.S.A., presided at the Thursday session. He introduced Arthur F. Harrison, who is chairman of the Committee on Taxation, who presented John T. Sapienza to give the committee report. Mr. Sapienza is affiliated with Covington & Burling, counsel for N.I.S.A. He discussed taxation from the legislation, administration and litigation standpoints. As to legislation on percentage depletion, Mr. Sapienza mentioned the 1939 code and the 1954 bill that gave all sand producers a 15 percent depletion allowance. Although that bill got by the House, it did not get through Congress. The Mills subcommittee on taxation held hearings beginning November 12 on the 1954 code. At that time, it was belived that percentage depletion would not be considered. But, he pointed out, if the committee is reconstituted in the next session of Con-

(Continued on page 138)



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Two million cubic yards of rock and sand and gravel and a million cubic yards of concrete will be needed to build the Canadian half of the Bernhart Island power plant. To handle this immense tonnage, a mile-long system of Barber-Greene Standardized Conveyors is in operation at the Pitts Quarry, Pitts Concrete Plant, and the Iroquois Concrete Plant.

Virtually no two of these conveyors are alike. Some of the conveyors run underground, some beneath a diversion canal. Others are at ground level and many are elevated. They vary in belt width, length, power, type of drive, supports, and intermediate sections—but they are all made up from Barber-Greene Standardized Components.

Constant change is typical of construction jobs. And the St. Lawrence Seaway operation is another proof of the flexibility of Barber-Greene Conveyors. Made of standardized components, Barber-Greene Conveyors meet changing needs . . . satisfy the demands of faster delivery and erection with least expensive engineering time.

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gress, it is almost sure to be brought up.

From the administration standpoint, one of the most important items is the issuance of treasury regulations, which were supposed to have been released at the end of 1954. At the time, Mr. Sapienza said that they were expected to be out the week following the Greenbrier meeting, in proposed form. He stated that the proposed regulations were of great importance to the industrial sand industry, and that the industry would be allowed 30 days to study them and to make recommendations. Also discussed were the test cases brought to determine the cut-off point. It is believed that the decisions in the brick, tile and cement industries form a good basis for the industrial sand industry.

W. D. Chadwick, Manley Sand Co., and chairman of the Committee on Fineness and Grading of Foundry Sands, reported on his committee's previous day's session. He discussed ways and means that the industry could use to educate the foundry industry on the problem of segregation. One effective method is underway. A color movie has been made to show how segregation in bins and hoppers occurs under circumstances of varying filling and unloading points. A special sand mixture was prepared for the experiment, and different sizes of sand in the mix were given separate colors. These show well in the color movie. The film provides a good visual answer to the question: "How do you know what happens re segregation in a bin or hopper?" Also, all members were asked to provide a special subcommittee with information on segregation. These data will be compiled and presented at a joint meeting with the foundry people next January.

Report of the Committee on Navy Sand Blast Specifications was given by Arthur Schlesinger, New Jersey Pulverizing Co., and committee chairman. He noted that there recently had been a temporary change made in specifications for the Navy, and that industry recommendations were requested. This committee has prepared screen specifications in response to the request. Mr. Schlesinger stated that they had worked out an answer to satisfy the Navy, but also made specifications broad enough to include sands for all industry.

The Traffic Committee report was given by W. J. Woods, Jr., Pennsylvania Glass Sand Corp., who is chairman of the committee. An inadequate car supply for the industry seems to be a perennial problem. According to Mr. Woods, at the end of September there was a 6900-car daily shortage of open-type hoppers and a 4600-car daily shortage of gondolas. Box cars and hoppers also are short, and the future is not bright, particularly with reference to hopper cars. Mr. Woods discussed the rail carriers' attempt to increase demurrage charges and freight rates. He gave seven arguments upon which the committee based a strong opposition to the proposed freight rate increase as it concerns sand, and recommended that the association strongly oppose the increases. Mr. Ahearn injected an important thought that, with the huge expansion that will come with the expanded road program, there will be much greater competition for cars among all industries.

Report of the Advisory Committee on Health was presented by committee chairman Earle T. Andrews, Pennsylvania Glass Sand Corp. The seminar on industral health held this year at Mellon Institute was most successful, with 35-40 people attending. If approval of the board of directors is given, another seminar will be held next June. He outlined a proposed program for that seminar, and also for the program on dust for the Spring meeting.

The session concluded with the president's appointment of a committee, Charles McKay of Whitehead Brothers Co. as chairman, to study and recommend methods of getting better statistical records on industrial sand production.

W. J. Cannon, The Nugent Sand Co., presided over the final business session Friday morning. He presented Mr. Wachter, who delivered what is considered to be one of the finest presentations on insurance that has been given to the industry. His talk covered risks of an average silica sand business that are approachable through the concepts of insurance. They involved, first, the various forms of property subject to peril and, second, kinds of perils to which forms of property are exposed.

Forms of property were grouped as (1) specific property, tangible and intangible, such as buildings, machinery, valuable papers, money, etc.; (2) all property—total resources of the company that are answerable for its legal obligations. Perils were classified: (1) those arising from acts of nature; such as fire, flood, etc.; (2) those arising from acts of persons—theft, embezzlement, vandalism, and negligence. After his complete and competent discussion, he summarized: (1) every insurance policy excludes some risks; (2) the settlement policies of an insurance company are more important than its rates; (3) insurance against floods is not generally available, but Congress recently made such insurance available through federal participation; (4) war damage insurance has not been available since 1946; (5) prevention of loss is equally as important as insurance against loss, since all loss frequently is not reached by insurance; (6) insurance is not a substitute for prevention.

The final committee report, on labor, recounted the experiences in the immediate past and highlighted the committee's outlook on the future. It was given by Ralph Lebold of Michigan Silica Co., committee chairman. Of importance to the industry, particularly in view of the proposed expansion of mineral industries due to the road program, was the belief that labor supply for the industrial sand industry will continue to be available in the foreseeable future.

Before adjournment of the meeting, all met to hear Mr. Ahearn's review of the Washington story. As usual, his wide knowledge of political Washington and his close relationship with all branches of government and business associations formed the basis for an informative presentation to the meeting.

Atom Use Predicted

THE PREDICTION of possible future use of nuclear energy in the phosphate industry was made by V. N. Antaki, Pocatello, Idaho, speaking before the Rocky Mountain Minerals Conference at Salt Lake City, Utah, September 27. The conference was sponsored by the Utah section of the American Institute of Mining, Metallurgical and Petroleum Engineers.

Continued industrial expansion was forecast by Mr. Antaki, an official of the Westvaco Mineral Products Division, Food Machinery and Chemical Corp.

Safety Film Directory

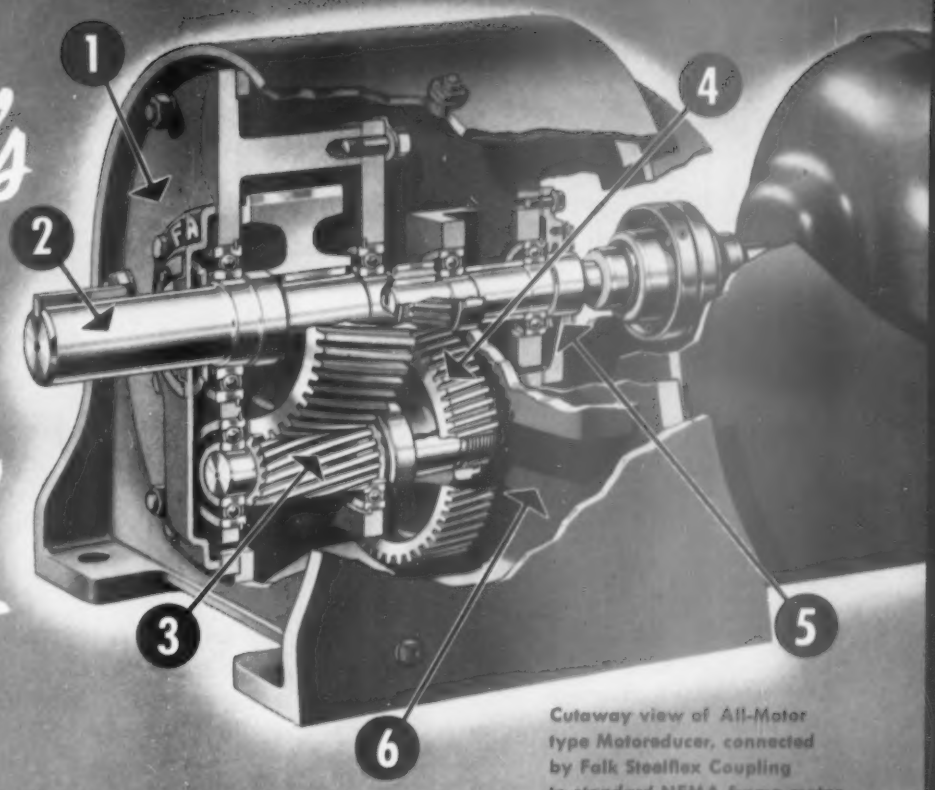
THE 1956 NATIONAL DIRECTORY of Safety Films is available from the National Safety Council. More than 1200 films, many of them dealing with industrial safety, are listed, and each film can be secured from one or more of 292 distributors. A single copy of the directory may be purchased for $1 from the National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

•

BURTON SAND AND GRAVEL CO., Burton, Ohio, has been incorporated by Billy Larson, I. D. Cole and S. S. Bostwick. The new firm issued 300 shares at a par value of $100 common stock.

Enter 1314 on Reader Card

Here's the inside story—



Cutaway view of All-Motor type Motoreducer, connected by Falk Steelflex Coupling to standard NEMA frame motor

WHY Falk Motoreducers give better service—have longer life

Here is the "inside story" behind the all-steel All-Motor type FALK Motoreducer's universal reputation as a gear drive unmatched in quality, efficiency, dependability, ease of maintenance and long life. These "In-built" factors are—

1 **ALL-STEEL HOUSINGS.** Rugged, strong, rigid...all parts are manufactured from heavy steel plate, formed and welded in the Falk Weld Shop.

2 **LARGE OVERHUNG LOAD CAPACITY.** Large shafts, oversize bearings...rigid mountings with wide bearing spans to handle maximum applied loads.

3 **PRECISION GEARING.** Heat-treated alloy steel gearing, precision cut and shaved after heat treatment to eliminate distortion. Quiet, crown-shaved pinions.

4 **EXTRA-CAPACITY GEARING.** Special extra-capacity gear-tooth form with larger contact area gives greater strength, higher load-carrying capacity.

5 **SEALED HOUSINGS.** Splashproof, dustproof, oil-tight construction. Dual closures and one-way vents keep oil in, dust and moisture out.

6 **POSITIVE LUBRICATION.** Large sump capacity...oiltight construction assures clean lubricant...revolving elements lubricated by direct dip.

When you buy or specify the All-Motor type FALK Motoreducer, you get all these—plus the tremendous advantage of full interchangeability of motors. Switch motors as desired—use any make, style or type of standard foot-mounted motor within the unit's AGMA rating—with a minimum of difficulty or "down time."

Available in sizes up to 75 hp—*with or without motor*—from convenient factory, field or distributor stocks, from coast to coast. **Write for Bulletin 3100.**

60,000 HOURS WITHOUT A FAILURE!

Sixty thousand hours is a lot of hours—but the FALK Motoreducer in the unretouched photo above has served that long without failure or need of repair.

This 3 hp unit is one of over 60 FALK Motoreducers in daily service in an Eastern plant of a large milling company, whose president says, in part:

"One of the main advantages of FALK Motoreducers is their adaptability to any motor. Reducers and motors can be easily interchanged....Our service records confirm the wisdom of our choice of FALK equipment as our standard."

FALK ...a good name in industry

THE FALK CORPORATION, MILWAUKEE, WISCONSIN

MANUFACTURERS OF

- Motoreducers
- Speed Reducers
- Flexible Couplings
- Shaft Mounted Drives
- High Speed Drives
- Special Gear Drives
- Single Helical Gears
- Herringbone Gears
- Marine Drives
- Steel Castings
- Weldments
- Contract Machining

PLEASE SHOW THIS ADVERTISEMENT TO YOUR BLASTING FOREMAN

Use this loop-lock half-hitch to connect a trunk line with a branch line of Plastic Reinforced or

PLASTIC WIRE COUNTERED PRIMACORD

This type of Primacord is highly resistant to abrasion and shearing. It is also extremely strong (300 pounds tensile). It is waterproof, and resistant to acids . . . . All of which makes this type the ideal Primacord for use with metal and fibre explosives containers . . . in deep, jagged, wet holes . . . wherever down-hole conditions are *tough*.

Plastic Wire Countered Primacord is far less flexible than the Plain and Reinforced types, and its plastic covering is *smooth*. So, play it safe . . . use a continuous, unbroken length in the hole, and attach the down line to the trunk line at a right angle with the loop-lock half-hitch shown here.

See your Explosives Supplier, or write to

THE ENSIGN-BICKFORD COMPANY
Simsbury, Connecticut *Established 1836*
Also Safety Fuse, Ignitacord®, Quarrycord, Blasting Accessories

1. Bend a figure eight (8) in the Plain or Reinforced Primacord trunk line. This will be your half-hitch.

2. Loop the end of the Plastic Wire Countered Primacord branch line and pass this loop through the figure eight as shown.

3. Pull the Primacord trunk line *tight* so that the half-hitch grips the doubled-over branch line below the loop.

4. Pass the free end of the branch line Primacord up through the loop as shown above. It can't slip off now!

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DETONATING FUSE

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P-23

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ALLOY STEEL — Lukens Steel Co. has brought out Form 781 describing Lukens "T-1" steel. Plate sizes and qualities available are listed, and technical data is included.

Enter 600 on Reader Card

ATTACHMENTS—Caterpillar Tractor Co. has published Form DE589, "Speaking of Attachments," dealing with profit-making aspects of earth-moving machinery attachments. Choice of the right attachment and the proper application are stressed.

Enter 601 on Reader Card

BATTERY CHARGERS—General Electric Co. has issued Bulletin GEA 6525, giving descriptive information, features, and models of metallic rectifier battery chargers for motorized hand trucks.

Enter 602 on Reader Card

BELT CONVEYOR — Goodman Manufacturing Co. has brought out Catalog G-115R which features the Goodman Rope Belt Conveyor. Operating advantages are listed and component parts are described in the bulletin which also contains pictures of job-site applications.

Enter 603 on Reader Card

BLOCK MACHINERY — Miles Concrete Equipment Co. has prepared a booklet on its line of block machines, power tampers, elevator and feeders and complete block plants. Description of the units and explanation of operating principles are included.

Enter 604 on Reader Card

CLASSIFIER—The Sharples Corp. has published Bulletin 1280 featuring the Sharples Super Classifier which applies the air vortex principle to the division of powdered materials into fractions according to particle size.

Enter 605 on Reader Card

COMPRESSORS—Worthington Corp. has issued Bulletin PC-509-P, an illustrated booklet with information on correcting common troubles of air-cooled and water-cooled compressors.

Enter 606 on Reader Card

CONCRETE FORMS — Symons Clamp & Manufacturing Co. has issued two new catalogs describing forming equipment. One catalog shows forms utilizing plastic coated plywood with steel framework (Steel-ply forms) and the other shows Mag-ply forms, in which magnesium is used as the metal frame.

Enter 607 on Reader Card

CRANE-EXCAVATOR — Schield Bantam Co. has announced Bulletin C-101 containing information on the specifications, features, capacities and application data on the crawler-mounted Model C-35 Bantam, ½-cu. yd., 5-ton crane-excavator. Machine specifications are listed, and operating ranges and capacity ratings are shown.

Enter 608 on Reader Card

CRUSHING PLANT — Gruendler Crusher and Pulverizer Co. has released Bulletin SP-56, describing its single-pass portable crushing plant. Component parts are illustrated, advantages enumerated, and specifications listed.

Enter 609 on Reader Card

DRY GRINDING MILLS—Hardinge Co., Inc., has published a 44-page catalog, Bulletin 17-C, on mills for dry grinding and pulverizing. It covers proper application and selection of conical, tricone, cascade, rod, tube, and disc roll mills, as well as various air classifying arrangements and mill auxiliaries.

Enter 610 on Reader Card

GEAR MOTORS—General Electric Co. has brought out Bulletin GEA-6133A, illustrating product features and including gear motor selection data, dimensions, ratings, and specifications of General Electric fractional horsepower gear motors.

Enter 611 on Reader Card

GRINDING MILLS—Nordberg Manufacturing Co. has released Bulletin 232, describing the complete line of Nordberg grinding mills. Rod, ball, pebble, tube and compartment type mills with grate, overflow, or peripheral discharge are covered in the 3-color brochure.

Enter 612 on Reader Card

LIFT TRUCKS—Hyster Co. has prepared Form 1487 featuring 25 industrial lift truck models ranging in capacity from 1000 to 30,000 lb. Hyster Models 30, 40, and 50, a newly introduced pneumatic-tired series of 3000-, 4000-, and 5000-lb. capacity, are illustrated, as well as Hyster "SpaceSaver" cushion-tired series and the Hyster "Monomast" lift trucks. Model KE "Karry Krane" yard crane is also described in detail. Available attachments are mentioned.

Enter 613 on Reader Card

LIGHTWEIGHT AGGREGATE — Perlite Division, Great Lakes Carbon Corp., has brought out three bulletins on Permalite concrete aggregates, produced by licensed franchisees. Properties, preparation and application of Permalite are discussed in Bulletin G42-24M154 (roof decks and roof fill) and Bulletin G43-25M154 (floor slabs, floor fill, and in radiant heating). Catalog 158B contains description, specifications, mix design tables and construction data.

Enter 614 on Reader Card

MAGNETS — Stearns Magnetic Products, Division of Indiana Steel Products Co., has issued Bulletin 1031, which describes the five major Stearns suspended separation magnets for removal of tramp iron in conveyor systems. Selection method, specifications and principles of operation are presented.

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Send information on items identified by key numbers beside or below items of interest to you. List your choice in numerical order. Limit 10 per card.

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TO HELP YOU OVERCOME TODAY'S PROBLEMS...
...AND TO PLAN EFFICIENTLY FOR TOMORROW

FREE INFORMATION

You can obtain catalogs and literature listed on these and other pages of the magazine by entering the number appearing either below or beside the item of interest on the READER-SERVICE CARD in this page.

MATERIAL HANDLING—Vac-U-Lift Co., Division of Hufford Machine Works, Inc., has issued a new brochure on the Vac-U-Lift material handling system which incorporates the principle of induced vacuum in conjunction with one or more Vac-U-Pads. The Powerpac vacuum system is described in the booklet which contains sizes, capacities and specifications, as well as photos showing the system in operation.

Enter 616 on Reader Card

MINING TOOLS — Vascoloy-Ramet Corp. has published Catalog VR-485 which lists sizes, specifications and recommended uses for chain cutter bits, roof drill bits, finger bits, auger drill bits, rotary drill bits, and percussion bits and blanks.

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MOTORS—General Electric Co. has issued Bulletins GEC-1026A and GEC-1027A containing information on a selected group of General Electric motors. Included are application data, ratings and prices for fractional hp. motors, integral-hp. polyphase and single phase induction motors, motors and control for part-winding starting, gear-motors and resilient-base integral-hp. induction motors.

Enter 618 on Reader Card

PAPER SELECTOR—St. Regis Paper Co. has brought out a paper selector for multiwall paper bags, in a slide rule form for easy reference. The selector makes it possible to select any multiwall bag paper and quickly find its properties, a description of its construction, and its present product packaging applications.

Enter 619 on Reader Card

PUMPS—Worthington Corp. has released Bulletin PC-508P, "Locating Trouble in Pumps," designed to help locate and correct common ailments of rotary, centrifugal and steam pumps.

Enter 620 on Reader Card

RESEARCH PROJECTS — Allis-Chalmers Manufacturing Co. has issued Bulletin 48B8448, "Research at Allis-Chalmers", in which facilities of the company's central research laboratories are described.

Enter 621 on Reader Card

ROCK BITS—Varel Manufacturing Co. has issued a leaflet on its two-cone bits: the V4 Varel Two-Cone Jet for extra speed in shales and medium lime; and the VH4 with harder formation T-teeth. Another leaflet describes Varel "Air Blast" rotary rock bits; and a third features Varel Slim Hole drill tubing.

Enter 622 on Reader Card

SCREEN HEATERS—Universal Vibrating Screen Co. has brought out Bulletin 160 describing the Unilec Dual-Heating Equipment which can heat two Universal screens with one 15-kv.-a. transformer.

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SCREENS — Bixby-Zimmer Engineering Co. has published Form 1005-56, "Bee-Zee Screens Make You Money," which treats in detail: screen characteristics, shapes and mountings; vibrating screens, conveyor and feeder screens; shaker, stationary and heat dryer screens; curved and cylindrical screens; filter screens; and specially shaped screens. Technical and comparative data are included.

Enter 624 on Reader Card

SHOVEL CRANES — Link-Belt Speeder Corp. has brought out Book 2577, a condensed catalog of the complete line of Link-Belt Speeder shovel cranes. Descriptive information is provided on the more than 20 new models, plus data on the Speed-o-Matic hydraulic control.

Enter 625 on Reader Card

SKID SHOVELS—International Harvester Co. has made available new literature on International Drott Skid-Shovels and attachments. K-656, a 16-page booklet, describes the entire line. Bullangledozer blades, rock forks, and scarifiers are covered in the single-page specification sheets A-400, A-500 and A-300, respectively. Another 4-page bulletin describes Drott Skid-Shovel buckets.

Enter 626 on Reader Card

SLURRY PUMP — Dorr-Oliver Inc. announces Bulletin 5003, "Oliver Diaphragm Slurry Pump." Features, applications, sizes and capacities, special designs, installation instructions and power requirements are discussed in the illustrated brochure.

Enter 627 on Reader Card

SOIL CEMENT—Portland Cement Association has published revised editions of Soil-Cement Construction Handbook and PCA Soil Primer, which include new information based on recent research in soil science and soil-cement construction methods.

Enter 628 on Reader Card

STRESSING WIRES—The Prescon Corp. has published a booklet, "The Prescon System," describing its system of prestressing concrete and containing technical data on its application. Illustrations depict the production of the stressing wires, and diagrams and specification charts supplement the text which lists Prescon advantages, uses, stressing procedure, and guides.

Enter 629 on Reader Card

WIRE SCREEN — The Cleveland Wire Cloth and Manufacturing Co. announces Bulletin 10, "Quality Wire Screen" which combines a brief history of the company with partial cataloging of wire screen items.

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Send information on items identified by key numbers beside or below items of interest to you. List your choice in numerical order. Limit 10 per card.

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CRUSHING WITHOUT RUBBING

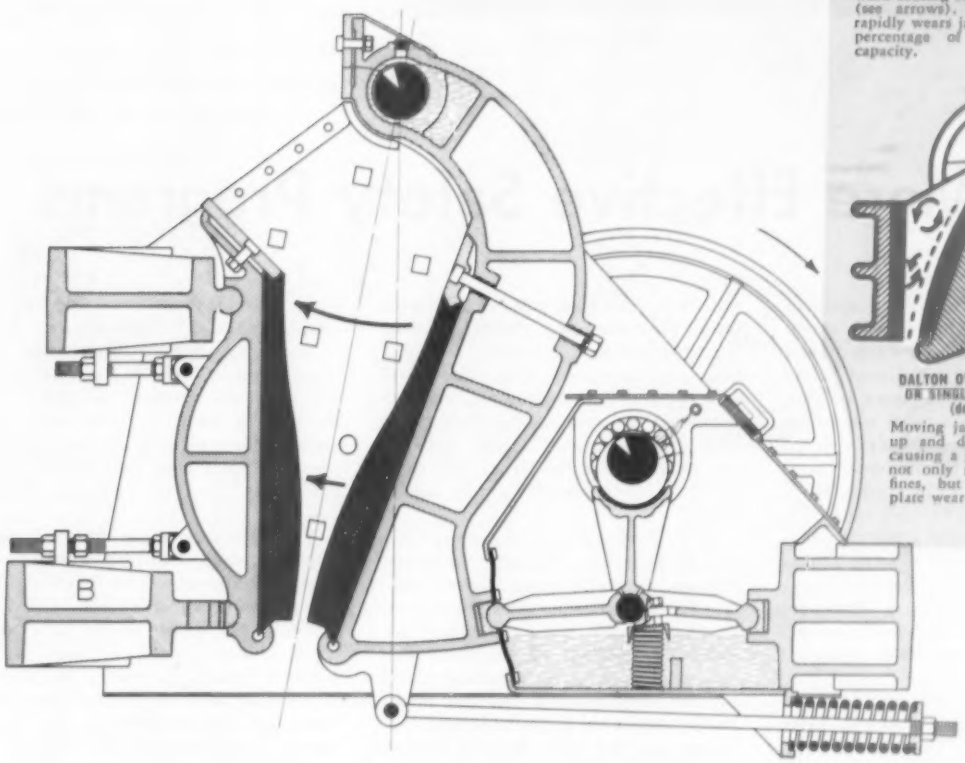
the first great improvement in JAW CRUSHERS in over 50 years

BLAKE OR DOUBLE TOGGLE CRUSHER
(designed 1858)

Note how swing jaw forces rock upward causing rock to rub against jaws (see arrows). This rubbing action rapidly wears jaw faces, increases the percentage of fines, and reduces capacity.

DALTON OVERHEAD ECCENTRIC OR SINGLE TOGGLE CRUSHER
(designed 1879)

Moving jaw forces rock both up and down (see arrows), causing a rubbing action that not only results in excessive fines, but causes heavy jaw plate wear and wasted power.



Until the Kue-Ken Jaw Crusher was developed, jaw crushers were either of the Blake or Dalton type (illustrated upper right) having the disadvantages of slow speed and a wearing, rubbing action of the jaw plates. The Kue-Ken crushes by pressure only, with no rubbing action (illustrated above). No capacity is lost by material being forced upwards with each stroke and wear and fines are reduced to a minimum. A faster, shorter stroke increases capacity and decreases the drop-thru of slabby pieces. Write for bulletin 5014.

PENNSYLVANIA

KUE-KEN® JAW CRUSHERS

PENNSYLVANIA CRUSHER DIVISION
Bath Iron Works Corporation
West Chester, Penna.

PE 246

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Left to right: G. G. Grieve, staff representative, N.S.C.; vice-president, Seymour B. Fleming, New York Trap Rock Co.; general chairman, Howard Riefenstahl, Alpha Portland Cement Co., Easton, Penn.; secretary, Walter A. Dearth, General Crushed Stone Co., Easton, Penn. Vice-chairman Paul Worseck was not present

Cement and Quarry Section, Safety Congress meetings point to need for more attention to "small" accidents

Seek More Effective Safety Programs

EFFECTIVENESS of industrial accident prevention programs was questioned in sessions of the Cement and Quarry Section of the National Safety Council in Chicago the week of Oct. 22. As evidence that more intensified efforts are needed, one speaker pointed to 14,200 deaths in industrial accidents, or one every 15 hr. during 1955, according to Safety Council estimates. Speakers also sounded a warning that success in reducing the number of disabling accidents must be no excuse for a let-up in safety work. Members of the Section held two half-day sessions as part of the 44th. National Safety Congress.

The Joint Luncheon, presided over by J. T. Ryan, Jr., president Mine Safety Appliance Co., Pittsburgh, Penn., was held on Tuesday, Oct. 23. Guest speaker was William Onchen, Jr., director, Management Development, personnel department, New York Central System. His subject was "Training in Communications." The five most important requirements sought by employes at any level, he listed as opportunity, sense of belonging, emotional security, economic security and recognition.

Howard Riefenstahl, safety director of the Alpha Portland Cement Co., Easton, Penn., general chairman of the section, presided over the Cement and Quarry session on Tuesday afternoon, Oct. 23 and Wednesday, Oct. 24.

Kenneth M. Morse, chief industrial hygiene engineer of the U. S. Steel Corporation, Pittsburgh, Penn., delivered a paper on "Health Hazards from Maintenance Solvents." His talk was illustrated with colored slide pictures. He also used charts showing the toxic action of solvents, evaporation rate, vapor pressure of chlorinated solvents and flash point. The speaker expressed the opinion that there is no such thing as a safe organic solvent, and declared that the term, "safe solvent" or "safety solvent" should not be used.

B. F. Avery, district engineer, General Electric Co., Chicago, presented a paper, "Lighting Your Way to Safety." He showed slide pictures demonstrating various types of lamps for industrial lighting. He declared that improved lighting in industrial plants reduces accidents and said that illuminating engineers as yet have come nowhere near the upper limit in improving industrial lighting.

The session closed with the showing of an unusual type of motion picture on communication, entitled, "Production 5118," with discussion by James F. Collins, director personnel and training, Universal Atlas Cement Co., New York City.

"Accident Analysis and Its Benefits" was the theme of the program on Wednesday, Oct. 24. A paper on "Lessons Learned from Fatalities in the Cement and Quarry Industry," prepared by Paul Worseck, assistant manager, safety and welfare, Lehigh Portland Cement Co., Allentown, Penn., was presented by Fred Storch, safety director of the Whitehall Cement Manufacturing Co. Mr. Worseck was unable to attend due to a death in his family.

Seven fatal accidents of different types were described and the causes analyzed in Mr. Worseck's paper. After each case history the conclusions drawn from a study of the facts were given and the resulting safeguards or changes in plant practice were described. Slide pictures of the accident sites and equipment were shown. The companies involved were not identified.

The first three case histories presented concerned quarry accidents or quarry equipment. The first case involved the death of an oiler killed in the cab of a power shovel in a New York quarry when a large stone crashed through the roof of the shovel cab shortly after a primary shot. The rock had fallen from the first level quarry face, bounced off the toe of the bank and onto the shovel. The conclusion was that the shovel operator should not have gone near the face following the shot until after a thorough inspection had been made.

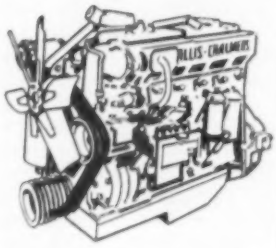
Recommendations for safe practices and procedures resulting from a study of this accident were:

"All personnel in quarries should wear safety helmits; daily inspections should be made of quarry face and top of bank, particularly where men are to work; if a bad bank condition exists, the shovel should not be allowed to clean up at the foot of the bank—a dragline should be used if the stone must be removed; pitmen and oilers should be impressed with their responsibility of being the eyes of the shovel crews; all wagon drills should have an air whistle with an extending chain and, when drilling toe, the helper should stand away from the

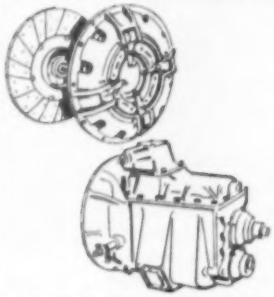
Look at the EXTRA WORK OUTPUT

the Allis-Chalmers TS-360 Motor Scraper gives you

Here are some of the design features that put the TS-360 way out in front in steady performance, dependability and length of service life.

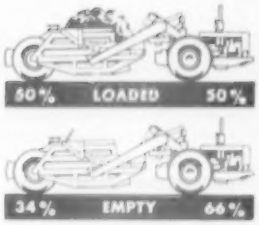


MORE USABLE HORSEPOWER. Allis-Chalmers diesel engine delivers 280 hp — 18.66 hp for each struck yard. This power gets the TS-360 away from the pusher fast . . . gives you speedier cycles, more trips per hour. In this engine, follow-through combustion holds effective working pressures to take advantage of better crankshaft leverage

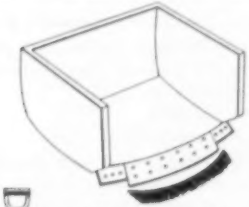


BIG-CAPACITY CLUTCH AND TRANSMISSION give fast, smooth operation under all job conditions. Clutch has air-actuated booster to reduce clutching effort and increase shifting efficiency. The heavy-duty transmission gives unmatched torque output in each gear range.

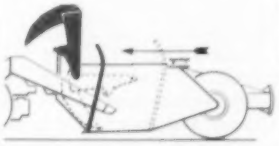
EXTRA-HEAVY FINAL DRIVES feature rugged differential assembly, carrier-housed drive shafts, final drive gears supported by large roller bearings and heat-treated drive axles. This long-life power train transmits maximum engine output for extra work volume, extra profit.



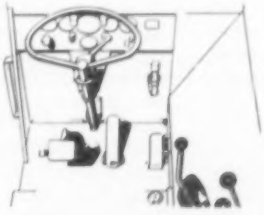
EXTRA TRACTION. The TS-360 motor scraper provides greater tractive effort, loading or traveling. Two-thirds of the empty weight is carried on drive wheels. Loaded weight is distributed equally between tractor and scraper wheels for better balance, increased flotation, safer hauling.



EASY-LOADING BOWL. Wide, low bowl design with curved bottom and offset cutting edge assures full capacity loads in less time. Curved bowl bottom "boils" dirt in, filling corners, heaping load with less spillage.



CONTROLLED DUMPING ACTION. Forward movement of ejector forces out load. High apron lift prevents material from jamming. This combination provides a continuous flow of material for a smooth, even spread.



POSITIVE STEERING. Two-stage selective power steering makes the operator's job easy . . . provides safe, feather-touch response and full maneuverability whether traveling at high speeds or in cut or fill.

OPERATOR CONVENIENCES add to production, too. Easy-to-reach controls, full visibility, four-wheel air brakes, roomy platform, comfortable air-foam seat are some of the features that help operator get maximum output from the TS-360.

More and more TS-360's are coming into your area every day. Ask your Allis-Chalmers construction machinery dealer where you can see them in action. Remember, too — your Allis-Chalmers dealer stocks True Original Parts and offers factory-approved service methods and factory-trained servicemen for your convenience.

ALLIS-CHALMERS CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

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Speakers at the Cement and Quarry Section. Left to right: J. R. D. Brown, assistant manager, Accident Prevention Bureau, Portland Cement Association; Fred Storch, Whitehall Cement Manufacturing Co., Cementon, Penn.; and H. F. Johnson, safety director, the Funkhouser Co., Hagerstown, Md.

drill with chain in hand and watch the bank; and blast hole drills should not operate directly above shovel or other crews."

Case History No. 2 was the fatal injury of a Dumptor driver as a result of a highway collision between a Dumptor and a milk truck while the Dumptor was being moved 12 miles to a new job site. The conclusion was: "That equipment of this type is extremely hazardous when operated outside its environment was clearly established by this accident . . There would be no recurrence, management decided, if in the future this equipment would move from site to site on trailers."

The third case history told how, because a main switch was not locked out, a carpenter replacing wooden lagging on a 42-in. conveyor belt in a Pennsylvania limestone quarry was caught in the pinchpoint and crushed to death. As a result of this accident, it was recommended that "all present equipment must be rebuilt to allow for proper locking out of main switches (disconnect switch ahead of starter), said switches to be locked out individually by all who inspect or repair the equipment controlled by switch." Mr. Worseck added the information that although all present equipment was rehabilitated in compliance with the new policy at considerable cost, most of this has already been regained through simplified operations and resulting lower costs. "In other words," the author commented, "the money spent in carrying out this accident prevention program really was an investment. Too bad that fact isn't generally appreciated until learned the hard way."

Two of the other four case histories were conveyor belt fatalities. Another was a fall into a pit from a railroad highline at a cement plant and the last case related the result of reaching under an engine hood of a truck loader without disengaging the hoist gear clutch.

Referring to the lessons learned from the case histories, Mr. Worseck adds this comment:

"Our accident prevention programs are not doing an effective job. If they were, fatal accidents would cease to plague us and not increase in numbers. While the problem is obvious, unfortunately the answer isn't. But it seems to me that we must increase our accident prevention efforts in two main areas: (1) enforce safe practices and procedures, and (2) engineer safe working conditions.

Although the cement industry has done an admirable job in reducing disabling accidents, the cement industry as a whole has not yet become fully aware of the benefits obtainable through a study of minor accidents. That opinion was expressed by J. R. D. Brown, assistant manager of the Portland Cement Association's accident prevention bureau in addressing the Cement and Quarry Section Oct. 24. His paper was entitled, "Lessons Learned from Minor Injury Accidents in the Cement and Quarry Industry." The speaker suggested that the title should be amended to read, "Lessons To Be Learned . . . " Progress made in studies of minor accidents to the end of 1955 was reported in ROCK PRODUCTS, Oct., 1956, p. 138, in an article entitled, "Little Accidents Are Important."

Mr. Brown said that the prospect of important benefits to safety work generally, encouraged the Portland Cement Association to expand its injury reporting system to include non-disabling injuries. "Preliminary study," he said, "leaves little doubt that much the same accident causes are involved in non-disabling and disabling injuries and fatalities. Non-disabling injuries appear to be symptomatic of the same deficiencies in men, methods and equipment that lead to disabling injuries. On this premise it was determined to obtain a more complete picture of cement plant accident experience by collecting and analyzing non-disabling injury data."

The decline of more than 90 per cent in the number of disabling injuries in member company plants over the past 25 years, Mr. Brown said, was also a factor in stimulating the study of the less serious injuries.

"Last year more than 40 per cent of the member company plants reported no disabling injuries or fatalities," Mr. Brown said, "and another 25 percent sustained just one chargeable disability. When organizations function for long periods without anyone suffering a serious injury, feelings of complacency and lack of awareness that serious injuries can occur tend to replace an ever watchful concern. When accidents are not occurring in any large numbers, employes are inclined to forget that they can occur. For these reasons the good safety record has in it some of the elements of a poor safety record."

There were 13,097 non-disabling accidents reported to the P.C.A. accident prevention bureau for the first six months of 1956, Mr. Brown said. He reported that returns from approximately 100 member company plants showed that an average of 23 non-disabling injuries have been occurring monthly in each plant with a range from none in 12 plants for one or more months to a maximum of 152 reported for one month by a plant which has a monthly average of 130 cases.

In closing, Mr. Brown threw on the screen a slide listing ten objectives of the P.C.A. Non-disabling Injury Study. These were as follows:

1. Broaden the base.
2. Combat complacency.
3. Identify unsafe acts and conditions.
4. Investigate every minor injury.
5. Spotlight Four Horsemen * type minor injury accidents.
6. Underscore chance factor in injury severity.
7. Emphasize prompt treatment for every injury.
8. Identify personal protective equipment needs.
9. Compare company plant and industry experience.
10. Encourage analysis and correction at plant level.

The last feature on the program was

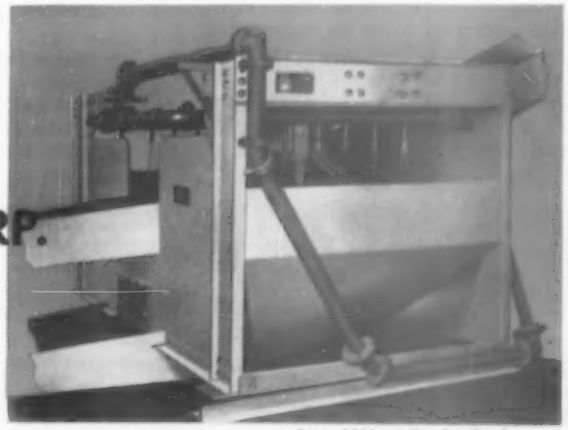
* Moving machinery, electricity, high places and haulage.

- **help you spell out your separating problems**
- **predetermine yield & efficiency of new equipment**

If you are planning new heavy-media equipment or plant, we believe you will find OCC's complete pilot plant and laboratory services of inestimable help. At the White Haven, Pa., plant pictured above you can see a commercial-size OCC Vessel treating truck or carload quantities of your feed. Samples will be taken in your presence and prepared for final product assay. In short, this OCC service enables you to confirm laboratory test results on a full operating scale and to determine yield and efficiency factors before you invest in equipment.

We invite you to join the increasing number of mining men who are visiting our pilot plant. We will be pleased to have you see in operation our complete, full-size HM system employing an OCC separatory vessel. This OCC unit has set entirely new standards of design, operating simplicity and metallurgical efficiency.

Below, OCC Heavy-Media Vessel: float and sink discharges on left, feed chute on right. U. S. and foreign patents.



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the showing of a series of slides assembled by H. F. Johnston, safety director of the Funkhouser Co., Hagerstown, Md., illustrating safety ideas offered by a number of cement companies and others.

All the officers who served the Cement and Quarry Section during the 1955-1956 period, were reelected for the 1956-1957 term. These are: general chairman, Howard Riefenstahl, Alpha Portland Cement Co., Easton, Penn.; vice-chairmen, Seymour B. Fleming, New York Trap Rock Corp., Newburgh, N.Y.; and Paul Worseck, Lehigh Portland Cement Co., Allentown, Penn.; program chairman, William A. Kipp, Universal Atlas Cement Co., New York; secretary, Walter A. Dearth, General Crushed Stone Co., Easton, Penn., and N.S.C. Staff Representative, G. G. Grieve.

Semi-portable aggregate plant of Morrison-Knudsen Co., Inc.

Semi-Portable Plant

MORRISON-KNUDSEN CO., INC., Boise, Idaho, is operating a semi-portable aggregate plant that combines portability with flow and maintenance advantages of a permanent installation. The plant consists of a 30- x 42-in. primary jaw crusher, an 848 "Hydrocone" secondary crusher, two 4- x 14-ft. triple-deck screens, and conveyors. Each screen and each crusher is mounted on its own rubber-tired trailer capable of traveling at truck speeds. Belt conveyors break in sections for moving on a flat-bed trailer, and conveyor support frames are designed for quick dismantling. Power is supplied by a 500 hp. diesel-driven generator unit housed in a separate trailer.

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PIONEER SAND CO., St. Joseph, Mo., is operating a new tug boat, built by the Missouri Valley Steel Co. at Leavenworth, Kan. It is 55 ft. long, 22 ft. wide, and has a working speed of 8 m.p.h. The tug, named after Charles J. Feeney, president and general manager of the sand company, is used to push sand barges.

Lime Convention Awards Safety Trophies

(Continued from page 132)

of standby fuels for rotary and vertical kilns by Irving Warner, vice-president of Warner Co., was not delivered in Mr. Warner's absence. Substituting, Russell W. Hunt discussed the relatively new and important subject of underground storage. From the standpoint of this country's defense during wartime, federal representatives of the Congress and the Military are interested in going underground. It is now known, said Mr. Hunt, that had the Germans gone underground a year earlier during World War II, the war could have lasted another four years and we may have lost it.

Commercially, Mr. Hunt said that an underground storage area made from working out a limestone deposit is a good way to leave an estate—better than an oil well or gold mine. It's an excellent place to store strategic materials, surplus foods, or critical medicines. The federal agriculture department is interested. Rubber and other materials are being stored now. The government has condemned land for underground storage, and Mr. Hunt is attempting to establish a fair price for such storage areas. Mr. Hunt has such an area that he has built for $1.75 per sq. ft., including sprinkling and lighting systems. He urged those who had limestone deposits to work them out and make a storage area. In addition to paying well, it will be a patriotic service to your country.

One of the highlights of the session was an address by Robert Cox, treasurer of Ash Grove Lime and Portland Cement Co., on his company's successful safety program. His company's Springfield plant has an outstanding record of nearly five years operation without a lost-time accident. Mr. Cox stressed that the major contributing factor to the attainment of such an enviable safety record is a proper safety attitude—a full acceptance of personal responsibility.

The final order of business was the announcement of the winners and presentation of awards and certificates to the winners in the N.L.A. safety contest for 1955. Ken A. Gutschick, former field editor for ROCK PRODUCTS and now manager of technical service for the association, made the presentations, after having reviewed the industry record for that year. The ROCK PRODUCTS trophy and N.L.A. certificate for the winner in Class A (1), which includes quarries with calcining plants with more than 100,000 man-hours without a lost-time accident, went to the Genoa, Ohio, plant of U. S. Gypsum Co., with 547,282 man-hours. Gordon Lacy accepted the awards for his company.

Winner of the trophy and certificate in Class A(2), quarries with calcining plants with less than 100,000 man-hours without a lost-time accident, was the Diamond Springs, Calif., plant of Diamond Springs Lime Co. The winning man-hour figure was 96,960. There was no award this year in Class B, mine and calcining plants, but Class C (calcining only) trophy and certificate went to the Ludington, Mich., plant of Dow Chemical Co. Dow awards were accepted by Arnie Sundholm for his company. Comparison data on the 1955 and 1954 N.L.A. safety contests are:

	1955	1954
Number of plants	40	51
Man-hours	9,570,922	9,594,398
Frequency rate	14.314**	14.279*
Severity rate	2.039	1.748
Accident-free plants	11	14

*—Record low
**—Second low

Cement Industry To Get Biggest Gains From Bill

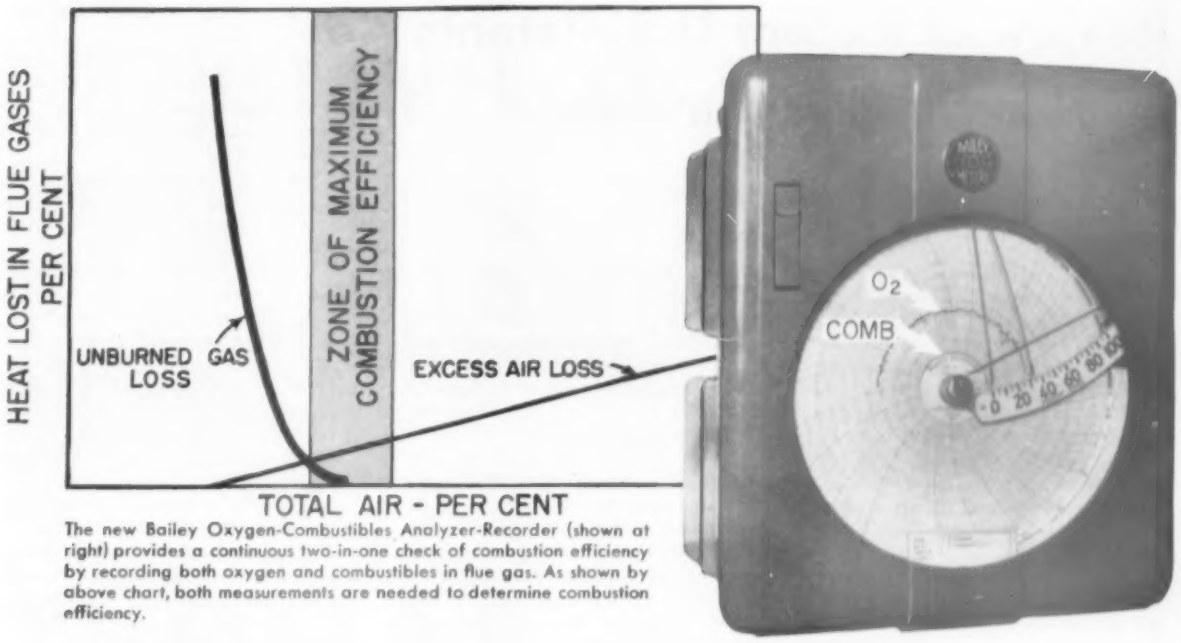
ELLERY SEDGWICK, JR., president of Medusa Portland Cement Co., sees the cement industry as the biggest beneficiary, proportionately, of the new Highway Aid bill. Although only about two percent of the $33 billion will go for cement, that alone would mean 20 percent of the cement industry's total production.

When the program reaches its peak, about 1960, use of cement will be increased by 50 to 60 million bbl. per year. This compares with total consumption in the nation today of 315 million bbl.

Said Mr. Sedgwick, "The cement industry has earmarked more than $100 million for plant expansion during the next two years. Our own company program calls for increasing our capacity to produce by 50 percent in the three-year period ending next year. We are spending $30 million to complete this program, which will provide us a total capacity of 12½ million bbl. annually."

Close pit

INTERNATIONAL MINERALS AND CHEMICAL CORP., Chicago, Ill., has suspended operations at the Peace Valley Mine for reasons of operating efficiency. The major pieces of mining equipment have been transferred to other properties and phosphate production will be maintained at previous levels.



The new Bailey Oxygen-Combustibles Analyzer-Recorder (shown at right) provides a continuous two-in-one check of combustion efficiency by recording both oxygen and combustibles in flue gas. As shown by above chart, both measurements are needed to determine combustion efficiency.

BAILEY announces . . .
New 2 in 1 way to measure Combustion Efficiency

The new Bailey Oxygen-Combustibles Analyzer-Recorder gives you a continuing double check on combustion economy. It's fast response measures and records:

1. Excess air—regardless of the fuel or combinations of fuels being burned.

2. The mixing efficiency of your fuel-burning equipment—by indicating the amount of combustibles in your flue gas, resulting from incomplete mixing of fuel and air.

Combustion efficiency depends upon fuel-air ratio. Too much fuel can be even more costly than too much air. And because of the interdependence of these two factors, no control that measures only one of them can give you complete protection.

Now, for the first time, you can check *both* with a *single* fast acting instrument, using the new Bailey Oxygen-Combustibles Analyzer-Recorder for industrial furnaces, kilns, heaters and boilers.

Fuel economy improves as excess air is reduced—until unburned fuel begins to show up in the flue gas. When this happens, combustion efficiency drops off sharply if there are further decreases in the air-fuel ratio. That's why combustion gases must be analyzed for *both* oxygen and combustibles to get a true indication of efficiency—and that is why Bailey coordinates both measurements on the same chart, to show when excess air may be reduced safely without danger of greater losses from unburned gases.

The Bailey Oxygen-Combustibles Analyzer is an approved combustion safeguard.

Ask your local Bailey engineer for suggestions on application. Equipment details in Product Specifications E65-1 and E12-5. P31-1

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INSTRUMENTS AND CONTROLS

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Review of Recent U.S. Patents on Non-Metallic Minerals

By OLIVER S. NORTH*

2,762,472—Designs for and methods of preparing and using hollow metal panels in the construction of walls, floors, and roofs of buildings. Good heat and sound insulating characteristics are imparted to these units by filling them with **mineral wool** or a lightweight mixture of expanded **perlite** concrete, after they have been erected at the job but before the openings are sealed. (J. O. Jackson. Assigned to Pittsburgh-Des Moines Co.)

2,762,505—A process for recovering potassium chloride from **sylvinite** ore by electro-dynamic means. (J. E. Lawver. Assigned to International Minerals & Chemical Corp.)

2,762,509—A flotation method for recovering potassium chloride from crude potash salts, such as **sylvinite** and **carnallite,** which reduces the consumption requirements of both the flotation amine and the slime depresser. A bivalent, aliphatic alcohol is added to the system at the same time as the slime depresser. (R. Bachmann. Assigned to Kalivertriebsstelle G. m. b. H.)

2,762,619—A design for a relatively small **portland cement** clinker-producing kiln. It is claimed that this kiln has advantages of much lower first cost compared with kilns generally used, better control of the process, and high capacity considering the small size of the apparatus. (M. A. Booth.)

2,762,686—A process for manufacturing high purity **whiting** by contacting **limestone** or **dolomite** with an alkali metal bath, and then quenching the material in water. A pure, finely divided precipitate is obtained. (G. L. Cunningham and J. M. Finn, Jr. Assigned to The Sinclair Manufacturing Co.)

2,762,698—A process for simultaneously producing uranium and fertilizer from Florida pebble **phosphate rock.** (M. D. Barnes. Assigned to Monsanto Chemical Co.)

2,762,738—Methods of and apparatus for producing cellular **gypsum** wallboard possessing strong edge portions. Three separate streams of core material can be fed to the table ahead of the master rolls, with the outside streams containing little or no foam. Alternatively, the entire slurry may contain foam when deposited and then the edge portions be de-foamed by means of agitation, use of de-foaming agents, or the like. (R. R. Teale. Assigned to National Gypsum Co.)

2,763,371 — Hydroclassification methods for recovering mineral values from the leached zone portion of the overburden of Florida pebble **phosphate rock** matrix. Other mineral values include varying percentages of aluminum, phosphorous, and uranium. (I. M. Le Baron. Assigned to Atomic Energy Commission.)

2,763,435—Oxalic acid or ammonium oxalate is added as a grinding aid or anti-agglomerant during the comminution of calcium-containing minerals to very fine particle sizes. Cited as being among the minerals whose grinding characteristics can be thus improved are **chalk, limestone, whiting, calcite, wollastonite, gypsum, apatite,** and **phosphate rock.** (M. E. Jordan and W. G. Burbine.)

2,763,561—A dry mortar mix having good bonding properties when mixed with water is composed of about 1 bag of **portland cement,** 15 lb. of 200-mesh **silica,** and 1 to 5 lb. of **asbestos** fiber. Other advantages claimed for this mortar mix include: less shrinkage cracking; greater flexibility to accommodate normal structural deflections; and quick set. (H. P. Burney, Jr., and J. L. Felder.)

2,763,971—A method and apparatus for use in applying a light abrasive, such as **tripoli** or rouge, to a rotating buffing wheel. (to N. C. Andersen. Assigned to Schlage Lock Co.)

2,764,472—An improved continuous process for recovering pure **salt** from natural sodium chloride brines that also contain such impurities as calcium chloride, magnesium chloride, and calcium sulfate. (to W. R. Cady, A. P. Julien, and D. J. Saunders. Assigned to Allied Chemical & Dye Corp.)

2,764,516—**Diatomite** is used with an alkyd resin and an organic polyisocyanate in the manufacture of foamed, cellular sandwich panels, which are useful for building insulation, sound proofing, and insulation of appliances, such as refrigerators, etc. (to H. A. Pace. Assigned to Goodyear Tire & Rubber Co.)

2,764,478—A substituted urea herbicide can be dispersed on ground **talc, clay, pyrophyllite, or diatomite.** (to N. E. Searle. Assigned to E. I. du Pont de Nemours & Co.)

2,764,494—Method of producing highly refractory units in which the basic raw material is calcined **magnesite.** (to K. Albert.)

2,764,496—Colloidal **bentonite** is useful as a dispersant in a finger painting composition. (to M. R. Vogel and B. J. Mellwig. Assigned to Binney & Smith, Inc.)

2,764,521—Vitamin B-12 active substances are clarified by filtering through purified **fuller's earth.** (to A. Leviton. Assigned to U. S. Secretary of Agriculture.)

2,764,843—A dextran seed-coating composition is modified with from 2 to 5 percent of minus 20-mesh **diatomite** or **clay** to lessen the hardness of the dried coating. (to P. Q. Peake. Assigned to The Commonwealth Engineering Co. of Ohio.)

2,764,888—Precast concrete floor sleepers are made by adding a solution of magnesium chloride to a dry mix of magnesia or **portland cement,** sawdust or **asbestos** fiber, **limestone** dust, and white **sand.** Sleepers of this type commonly form a base to which wood flooring is nailed. (to C. Le R. Olson.)

2,765,074—A method for processing pegmatites or the like to recover **feldspar, mica, quartz,** and other minerals more economically than is possible by other methods. The ore is crushed to pass a 20-mesh screen and the mica removed by screening. Next, dust is removed by air cleaning and the remaining material is subjected to high-intensity induced magnetism. Quartz and feldspar are separated by electrostatic fields of force. (to G. S. Diamond.)

2,765,075—This process for preliminary concentration of heavy minerals by using magnetic methods is said to be adaptable to the recovery of **phosphate rock** from Florida pebble ores and the removal of heavy minerals from **collophane** deposits found in the Magdalena area of Lower California. (to N. Goodwin. Assigned to Centrijig Corp.)

2,765,223—Among the suitable abrasive agents listed for use in a liquid silverware buffing composition are **tripoli, emery,** and **garnet.** In some cases the abrasive is dispersed in **bentonite** before being added to the composition. (to E. T. Candee and S. L. Doughty. Assigned to The Lea Manufacturing Co.)

2,765,240 — A silver precipitating

(Continued on page 155)

*Copies of United States patents are available from Commissioner of Patents, Washington 25, D. C., at a cost of 25¢ each.

CUSTOMER ACCEPTANCE

THOMAS
DREDGE PUMPS NOW ARE
SELLING
Themselves!

Times change. Sale of a THOMAS DURABLE DREDGE PUMP is different from what it used to be. After installation of hundreds of THOMAS PUMPS in all sections of the Country, and several years of almost unbelievable performance, sand-and-gravel men now ask for THOMAS PUMP installations.

Several years ago, the average pump user often said: "Your pump looks good. But I don't know Thomas Foundries, and never heard of a Thomas pump. I can't afford to experiment. Let some one else try it."

Recently, a sand-and-gravel operator in a nearby state sent us an inquiry. He said: "We have been using Manganese Steel Pumps, but we want a THOMAS PUMP on our new dredge. Send us information on power requirements, speed, capacity, etc."

When we telephoned him long distance, offering to send a Thomas engineer to see him, he said: "No need to send an engineer. You don't need to sell me a THOMAS PUMP. I've sold myself by hearing trade gossip and pump conversation from other sand-and-gravel producers for the past 3 or 4 years. Just send me the data I asked for, and I'll send you an order." This 12" x 10" pump will be shipped shortly!!

THOMAS PUMP performance is due to its unique design and the dependable genuine "Thomas" NI-HARD alloy from which the pump is made. *Write for details.*

[YOU CANNOT BUY, AT ANY PRICE, A MORE DURABLE PUMP FOR SAND AND GRAVEL—YOU CANNOT BUY ONE THAT WILL MAKE YOU AS MUCH MONEY.]

THOMAS FOUNDRIES Inc.

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Program Crushed Stone Association Annual Meeting In Miami Beach, Fla.

THE FORTIETH ANNUAL CONVENTION of the National Crushed Stone Association will be held at the Americana Hotel, Miami Beach, Fla. The tentative program for the four-day sessions is given below:

Monday, January 14

In the morning there will be a meeting of Manufacturers Division, Board of Directors. The afternoon will be devoted to a meeting of N.C.S.A. Board of Directors.

Tuesday, January 15

N. E. Kelb, president, National Crushed Stone Association, president, Cumberland Quarries, Inc., Indianapolis, Ind., will preside at the morning session.

Moving Picture

Greetings from the President—N. E. Kelb

Report of Elections by Board of Directors

Report of Executive Director—J. R. Boyd

Report of Engineering Director—J. E. Gray

Address

Greeting Luncheon

Clarence Camp II, President, Camp Concrete Rock Co., Ocala, Fla., will preside.

Presentation of N.C.S.A. Safety Contest Awards

"World Affairs—A Ringside Seat"—Captain W. C. Mott, Office of the Chairman, Joint Chiefs of Staff, Washington, D.C.

The afternoon will be open for individual plans. N.C.S.A.

Fiesta Evening

Dinner—Entertainment—Dancing

Wednesday, January 16

O. E. Benson, president, General Crushed Stone Co., Easton, Penn. will preside at the morning session.

Moving Picture

Report of Auditing Committee

Report of Resolutions Committee

"Significant Highlights of the New Percentage Depletion Regulations"—John F. Lane, Gall, Lane and Howe, Washington, D.C., general counsel, National Crushed Stone Association

"The Growing Danger from Zoning and Performance Standards"—W. P. Foss, III, president, New York Trap Rock Corp., Chairman, NCSA Public Relations Committee

"Guide for Handling Subrogation Problems"

W. C. Rowe, treasurer, Rowe Contracting Co., Malden, Mass., Chairman NCSA Subrogation Committee

Douglas B. Sherwood, assistant general manager, National Board of Fire Underwriters, New York, N.Y.

"Quality Requirements for Materials to be Used Under the New Highway Program"—A. C. Clark, Deputy Commissioner, U. S. Bureau of Public Roads, Washington, D.C.

General Luncheon

"And Greater Highways Than These You Will Travel"—Arthur C. Horrocks, Public Relations Counsel, Goodyear Tire & Rubber Co., Akron, Ohio will be the speaker.

The afternoon and evening will be open for individual plans.

Thursday, January 17

At the morning session of Operating Men and Equipment Manufacturers, C. E. Hogeboom, chief engineer Consumers Co., Chicago, Ill., will preside.

"St. Lawrence Seaway and Power Project"—Sound color moving picture

"Quarry Efficiency Standard Record-Keeping"—T. C. Cooke, president, Lynn Sand & Stone Co., Swampscott, Mass.

"Measurement of Stone in Storage in Total and by Sizes"—Nelson Severinghaus, vice president and general manager, Consolidated Quarries Corp., Decatur, Ga.

"Advantages and Disadvantages of Scalping Between the Primary and Secondary Reduction Crushers"—E. Lee Heidenreich, Jr., Newburgh, N.Y.

"Quality Control in the Production of Aggregates"

Introduction—J. E. Gray, engineering director, National Crushed Stone Association

Panel Discussion

"Stripping for Quality"—John Bratton, Jr., general manager, Superior Stone Co., Raleigh, N.C.

"Crushing for Quality"—L. J. Burriss, chief engineer, Weston & Brooker Co., Columbia, S.C.

"Screening for Quality"—M. Hankin, Jr., executive vice-president, North Jersey Quarry Co., Morristown, N.J.

"Rinsing and Washing for Quality"—John Cibula, vice-president in charge of operations, Bradford Hills Quarry Inc., East Petersburg, Pa.

"Various Methods of Stockpiling and Reclaiming to Maintain Quality"—John Kawaske, general superintendent, Callanan Road Improvement Co., South Bethlehem, N.Y.

Manufacturers Division Luncheon

(For Members of the Manufacturers Division only)

At the afternoon session, P. V. Corey, president, Blue Rock Quarry, Cumberland Mills, Maine will preside.

"Significance to the Stone Producer of Flexural Strength Specifications"—A. T. Goldbeck, engineering consultant, National Crushed Stone Association, Washington, D.C.

"You Can Help End Tax Discrimination"—Walter Koch, president, International Steel Co., Evansville, Ind.

"Significance of Recent Annual Elections—A Washington Preview of What Lies Ahead"—James W. Douthat, assistant vice-president, Government Relations Division, National Association of Manufacturers, Washington, D.C.

Report of Accident Prevention Committee

"Improving Management Skills"—Jack Joynt, The American Enka Corp., Enka, N.C.

Discussion

Reception and Banquet, Evening

N. E. Kelb, president, National Crushed Stone Association, will preside.

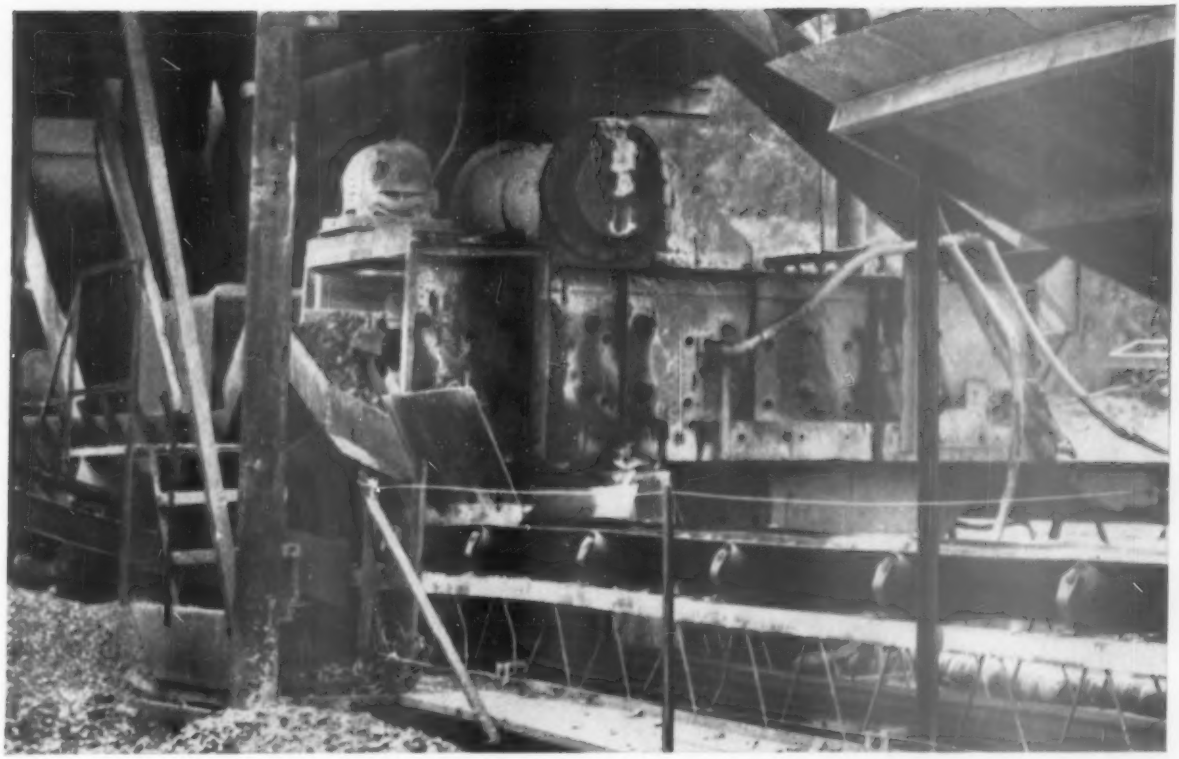
"My Experiences . . . . or I should Have Stood in Bed"—Jimmy Swan

Mining Society Probes Shortage of Engineers

MINING SOCIETY OF NOVA SCOTIA, at its annual meeting, heard an address by E. D. Brown, manager of National Gypsum Co. Mr. Brown proposed a scholarship fund as a solution to the problem of a shortage of trained engineers. Mining industries, producing 10,000,000 tons annually of coal, gypsum, barite, salt and limestone, could raise $100,000 a year if they contributed a cent for every ton they produced, said Mr. Brown.

•

WELLINGTON STONE CO., Wellington, Texas, has been organized as a partnership by Alvin Horton, Dudley McMillin, and Horace Small. Limestone for building purposes will be quarried on land owned by Mr. Small about 9 miles north of Wellington.



5 Deister Screens help Sidwell Bros. produce up to 300 tph!

Sidwell Brothers, South Zanesville, Ohio, quarry owners, have been Deister boosters since 1947. Says Carl Sidwell, "Deisters make good, dependable, efficient screens. We've had real service from ours . . . that's why, when we needed more screening capacity last spring, we bought two new Deisters."

Sidwell Brothers use 4 different type Deister Screens for their specific requirements. Entire feed from a 42″ x 48″ primary crusher (up to 300 tph) crosses a Deister UHS (Side-Tension) Single-Deck 5′ x 8′ Scalper with 2″ openings. All 2 x 0 stone is rinsed and de-watered on a Model UF (Flat) Double-Deck 4′ x 12′ Horizontal Screen with ½″ openings on the top deck and ⅛″ on the bottom.

Tipple No. 2 utilizes Sidwell Brothers' original Deister, an End-Tension Three-Deck 5′ x 12′, for sizing coarse aggregate to specifications. A pair of Deister SL (High-Speed) Single-Deck 4′ x 8′ Ag-Lime Screens, mounted on a 30° slope, produce the finer sizes.

If you, too, have a tough aggregate screening problem, you can benefit from such *exclusive* Deister features as Adjustable Slope Panels (independently adjustable at both feed and discharge ends to increase or decrease screening angle) . . . Unitized Life-Time Vibrating Mechanism . . . Opposed Elliptical Throw controls material movement on screen for greatest sizing speed and efficiency. Write Deister for recommendations on your screening problems.

Model UF, top, and Model SL, immediately above. Below, Model UHS double-deck Deister Screen equipped for suspension mounting.

DEISTER MACHINE COMPANY

1933 East Wayne Street, Fort Wayne 4, Ind.

Enter 1236 on Reader Card

Here's MORE efficient driver speed for HEAVY Loads

ALLIS-CHALMERS TEFC Wound-Rotor MOTORS

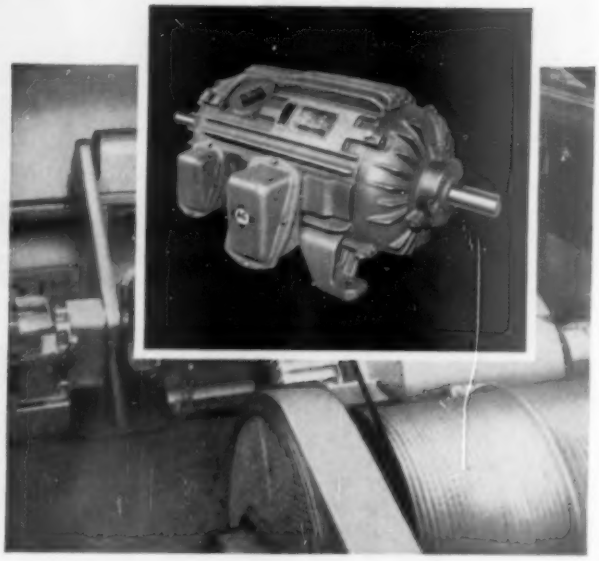
Where high inertia loads must be accelerated quickly and smoothly — yet power supply is limited — the Allis-Chalmers wound-rotor motor proves its efficiency . . .

High starting torque with this motor requires relatively low line-current. In addition, adjustable acceleration and running speed are possible through use of simple controls.

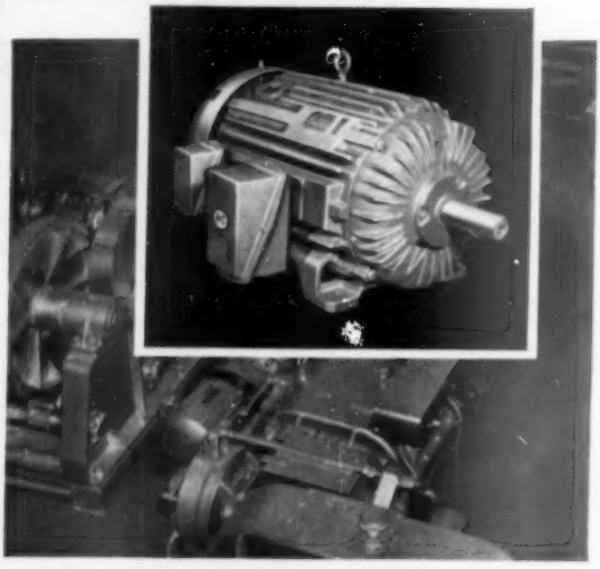
Other features of the TEFC wound-rotor motor include:

1. **Rib construction** provides ample cooling surface.
2. **Single enclosure** surrounds stator, rotor, slip rings, brushes and brush rigging. Gives maximum protection in moist, dirty, corrosive or hazardous atmosphere.
3. **Cast-iron frame** contributes rigid, distortion-free bearing support and keeps alignment true.
4. **Easy access** to collector rings and brushes permits on-the-spot inspection of brushes and commutators.

If you use hoists, lifts, cranes, conveyors, crushers or mills, find out more about the "MORE" in Allis-Chalmers wound-rotor motors. A-C motors also are available in various open types. Contact your nearby A-C sales office, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin.



For intermittent duty, this totally-enclosed, non-ventilated model is available in frame sizes 284 to 505 inclusive. Above 505 frame, Allis-Chalmers offers its famous tube-type motor.



For continuous service, this tough, fan-cooled model is ideal. All enclosed motors can be furnished in standard enclosed or explosion-proof construction rated 55 C rise.

A-5190

ALLIS-CHALMERS

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RECENT PATENTS

(Continued from page 150)

agent is dispersed in a matrix of extremely fine, inert mineral particles, such as **fuller's earth, diatomite, bentonite, talc,** or **mica.** (to E. H. Land. Assigned to Polaroid Corp.)

2,765,290—An improved soil-like material is produced by admixing the soil with exfoliated **vermiculite** particles that have been sprayed with a small percentage of sodium polyacrylate, known commercially as Krilium, or other similar acrylic compound. A soil so treated has increased aeration and structural stability, and better workability and water retention characteristics. (to G. E. Ziegler. Assigned to Zonolite Co.)

2,765,291—Chemical agents used for conditioning soils, such as the commercial product called Krilium, can be extended with relatively coarse granular **pumice.** Uniform distribution of the agent in the soil is said to be obtained by using this low-priced material. (to F. F. Horne.)

2,765,507—An improved sand core and mold composition made by combining foundry **sand** with a binding agent which is a polymer of an acrylic acid or an ammonium salt thereof produces cores and molds having high green strength, baked strength, hardness, and collapsibility, and excellent permeability and surface smoothness. (to R. J. Wolf and R. E. Score. Assigned to The B. F. Goodrich Co.)

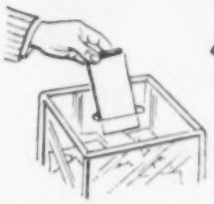
2,765,511—In a method for forming radiant heat conduits in concrete floors, concrete is poured around soluble pipes and allowed to set, and the pipes then are dissolved and flushed away. The composition used for making such dissolvable pipes comprises expanded **perlite** and a fully soluble binder, for example, a glutinous material. (to C. Greene.)

2,766,055—A method for making molded and vulcanized laminated gaskets from **asbestos** fabric, preferably having wire inserts. The product is highly resistant to delamination. (to E. J. Poltorak. Assigned to Johns-Manville Corp.)

2,766,102—A method for producing sulfur dioxide from sulfidic ores, especially **pyrites.** (to W. K. Lewis and E. R. Gilliland. Assigned to Esso Research & Engineering Co.)

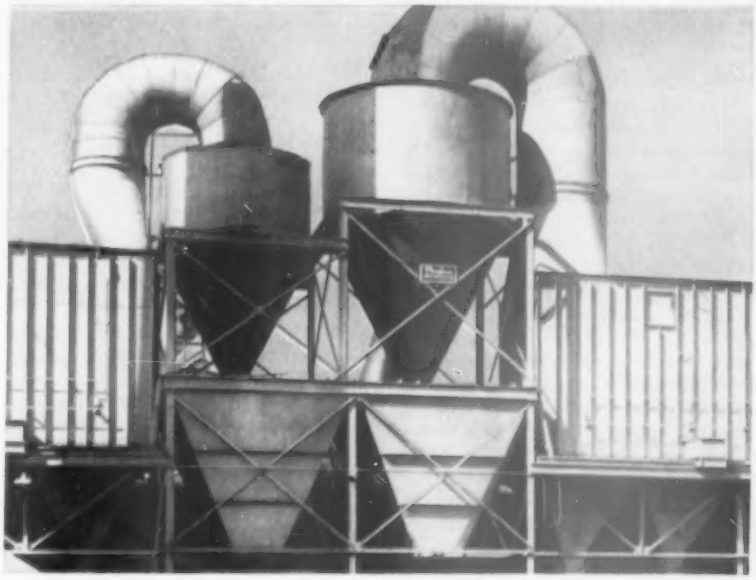
2,766,127—Printing inks containing small percentages of swollen **bentonite** will operate on high speed presses with little or no misting. Common commercial grade bentonite can be caused to swell by contacting it with water, steam, or formamide. (to A. Voet and I. Williams. Assigned to J. M. Huber Corp.)

Henry Chanin Corp. cast its ballot for



Pangborn Dust Control

. . . and voted itself over $10,000 a year



The Henry Chanin Corp., East Point, Ga., is a processor of textile waste. To control the great quantities of dust released by the operations at this plant, the firm uses four Pangborn Dust Collectors.

Today Pangborn Dust Control has almost doubled production at Henry Chanin by eliminating daily downtime that had been required for machine repairs.

Working conditions and quality of product are both improved. And, thanks to Pangborn, maintenance and labor costs have been lowered by over $10,000 a year!

Pangborn CONTROLS DUST

10D

How do you Vote?

CAST YOUR BALLOT

☐ **Please send me more information on Pangborn Dust Control immediately.**

Name_____

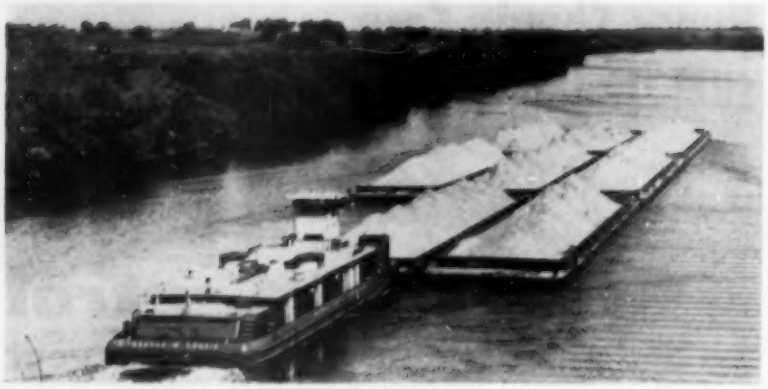
Company_____

Address_____

City_____ Zone_____ State_____

If you're interested in efficient, profitable plant operation, cast this "ballot" for additional information on Pangborn Dust Control. Send to **Pangborn Corp., 4300 Pangborn Blvd., Hagerstown, Md.**

Enter 1292 on Reader Card



Material Service Corp.'s new diesel-powered towboat, the M/V George W. Lenzie, on her maiden run moves eight barges upstream

Adds Towboat to Fleet

MATERIAL SERVICE CORP., Chicago, Ill., has added the 110 ft. M/V George W. Lenzie to its fleet of towboats. Powered by two 800-hp. Nordberg Supairthermal diesel engines, the Lenzie is capable of pushing eight 195- x 35-ft. barges, loaded with 12,000 net tons of material, upstream at 6-m.p.h.

The new vessel was named in honor of George W. Lenzie, director and vice-president in charge of production of Material Service Corp. Calumet Shipyard and Drydock Co., South Chicago, built the vessel which incorporates such features as a telescoping pilothouse and especially designed steering and backing rudders to permit it to operate effectively on the narrow Chicago and Calumet Rivers.

Cement Plant in Iran

A NEW PORTLAND CEMENT PLANT at Doroud, Iran, 250 miles southwest of Teheran, is being constructed. The 600-t.p.d. plant will have two rotary kilns, primary crusher, washers, tube mills for raw and finished grinding, and ancillary equipment, all being furnished by the British firm, Edgar Allen and Co., Ltd., Sheffield. A power station will be built to supply electricity to the plant.

Solite Sponsors Contest

CAROLINA SOLITE CORP., Charlotte, N. C., stimulated competition among Clemson College architectural students with its annual "Solite Competition Award" contest. The students designed recreational facilities and pavilion for a mountain resort, and were guided by actual conditions and requirements.

•

THE SAND CREEK SAND & GRAVEL Co., Huerfano County, Colo., has been formed by Alfred Lenzotti, George Bak and Dan Lencz. The company furnishes washed sand and gravel for Huerfano County, and also the Trinidad and Pueblo, Colo., areas.

New Dock in Use

TWO VESSELS carrying cargoes of cement were the first to be accommodated at the new general cargo dock of Greater Baton Rouge Port, Baton Rouge, La., The Sottern, a Norwegian ship, carried cement clinker, destined for the Ideal Cement Co. The Clarissa, a Yugoslavian ship, carried 2100 tons of bagged cement for Midwestern points, in addition to 4000 tons of other cargo.

Extend Hydraulic Operation

MT. CARMEL SAND AND GRAVEL Co., Mt. Carmel, Ill., has increased the scope of its hydraulic operation on the Wabash River with the additional pumping power provided by a G.M. Detroit Diesel "Twin Six" engine. In pumping solids from the river through 8-in. pipe to its processing plant on shore, the company now can extend its recovery operation from a former distance of 400 ft. to 700 ft. as needed.

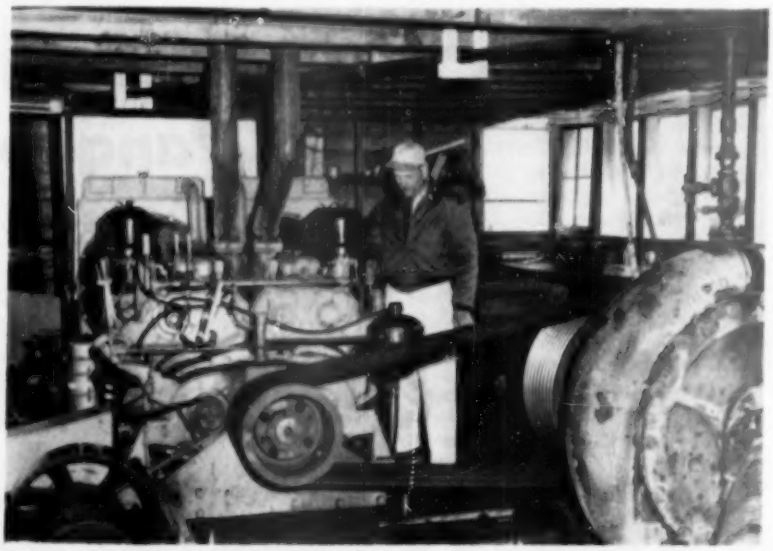
This extension will not increase the draft of the barge nor interfere with its maneuverability, says A. C. Rehnquist, partner in the firm. The new engine drives a Hetherington-Berner 8-in. dreadnaught pump.

Flocculating Agent

THE DOW CHEMICAL CO., Midland, Mich., has developed Separan 2610, a synthetic organic water-soluble, high-molecular weight polymer for flocculating solids. Shipped as a white amorphous solid which is dissolved and applied as a dilute aqueous solution, Separan 2610 is said to have shown the following advantages: stepped-up settling rate; increased overhead clarity; improved filtration rate; decreased filter cake moisture; increased materials recovery; reduced cost; and effectiveness over a wide pH range.

Tasmanian Plant Enlarged

GOLIATH PORTLAND CEMENT CO., Ltd., Tasmania, is tripling the capacity of its cement plant at Railton with the addition of a new kiln. Annual production, now 55,000 tons, will become 150,000 tons. Provision is also being made for installation of an additional plant which will lift the figure to 190,000 tons per annum, should the need arise. Tasmanian cement consumption is now near the 100,000-t.p.y. mark.



Aboard the gravel-pumping dredge of Mt. Carmel Sand and Gravel Co., Irvin Feacheiley uses the new Hydrostarter to start the engine without the use of batteries

These two Mack LRX 15-ton dumpers haul clay for the Standard Portland Cement Division of Diamond Alkali Company. **Their unique design solves . . .**

a sticky problem

. . . the problem of dumping heavy clay that often sticks in the box, particularly in winter. This has been overcome by use of a special exhaust-heated dump body with a low-angle scoop that provides efficient dumping even on the coldest days.

Just as important to the efficiency of this operation is the use of Macks to maintain load schedules. It's a demanding job—a job that's best served by the matchless hauling stamina and dependability of Macks.

Why not follow the example of this satisfied Mack user? Whatever your particular needs, there's a Mack off-highway dumper that will do the job better and more economically. Standard heavy-duty dumpers and super-duty trucks with payloads up to 34 tons . . . choice of Mack 170 or 205 horsepower Thermodyne® Diesel engines or larger . . . transmissions with or without torque converters . . . hydraulic steering boosters . . . exclusive Mack-built two- and four-wheel drive rear axles . . . plus many other exclusive features.

With Mack, you can get the truck you want, generally from stock—trucks with a long-established reputation for on-the-job dependability and economy. For full details, contact your local Mack Branch or Distributor. Mack Trucks, Inc., Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

4089

MACK
first name for
TRUCKS

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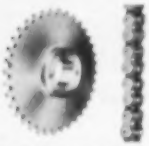
DODGE PRODUCTS
You Should Know-

DODGE-TIMKEN
PILLOW BLOCKS

TAPER-LOCK
ALL STEEL
CONVEYOR PULLEYS



TAPER-LOCK
SPROCKETS AND
DODGE ROLLER CHAIN

Dodge Bulletins you should have-

- Rolling Bearings. Load ratings, dimensions and other data on Dodge-Timken Roller Bearings and SC and SCM Ball Bearings. Bulletin A-638A.
- Taper-Lock All Steel Conveyor Pulleys. Construction details, sizes, dimensions. Bulletin D56.
- Taper-Lock Sprockets, Taper-Lock Chain Couplings, Dodge Roller Chain. Technical information. Selection, installation, maintenance data. Bulletin A-644.

Write for your copies.

DODGE
of Mishawaka, Ind.
DODGE MANUFACTURING CORPORATION
2600 Union Street • Mishawaka, Indiana

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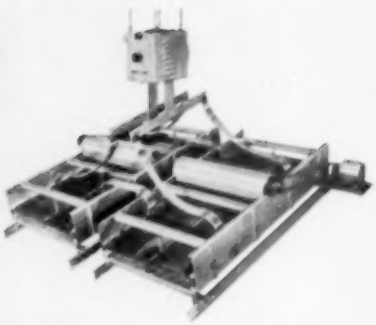
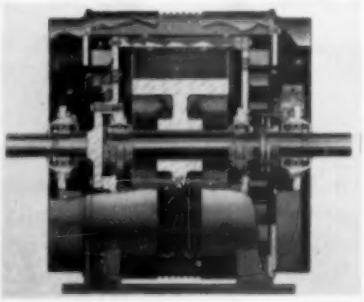


Dual-Heating Equipment

UNIVERSAL VIBRATING SCREEN CO., Deane Blvd. and St. Paul R.R., Racine, Wis., has introduced the new dual Unilec electrical heating system for vibrating screens. The unit is capable of heating two Universal screens with a single 15 kv.-a. transformer. Dual screen heating is said to permit greater production at savings in initial cost and power consumption. Secondary voltage ranges from 1½ to 5½ volts, depending on rheostat settings.

Unilec design incorporates copper distribution bars bolted between the steel angles and screen mesh along the entire length. The screen cloth is entirely insulated from the steel frame of the machine. Tensioning rails eliminate the need for complicated insulation; extruded rubber channel strips provide insulation down the center of the screen. Transformers are fitted with current adjusting rheostats, protective circuit breakers, and ground lights.

Enter 205 on Reader Card



Magnetic Drives

ELECTRIC MACHINERY MANUFACTURING CO., Minneapolis 13, Minn., has developed Type MDS magnetic drive to take the place of two existing lines, the MDC and MDE, in controlling speed of boiler draft fans, centrifugal pumps, and test stand equipment. A single basic design now is used for all sizes and ratings from 200 hp. at 720 r.p.m. to more than 2500 hp. at higher speeds. Overall simplification of the design is said to minimize maintenance, and significant savings in space required have been achieved by use of "cross flow ventilation" and design changes.

Major components of the magnetic drive are a ring member, coupled or belted to a driving motor, and a magnet member, similar to the rotor of a synchronous motor, and connected to the load. Magnetic reaction between the two rotors is controlled by the amount of d-c fed to the field poles from a magnetic amplifier control, the Regutron. During steady state operation, the Regutron automatically maintains the output within ± one-half percent of the desired speed.

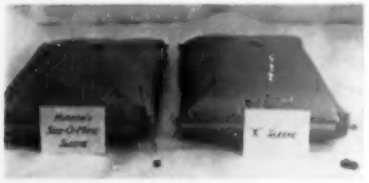
Enter 206 on Reader Card

Motor Scraper

ALLIS-CHALMERS MANUFACTURING CO., Milwaukee, Wis. has introduced Model TS-260 Motor Scraper, a 200-hp. unit with 14-cu. yd. heaped capacity. It is powered by a 6-cylinder Allis-Chalmers diesel engine, engineered to maintain a high yardage-to-hp. ratio, plus a favorable hp.-to-gross weight ratio.

Construction features are a hydraulic pump, gear driven from the rear of the engine crankshaft, curved bottom and three piece cutting edge with offset center edge; positive forward ejection plus high apron lift; selective hydraulic steering and all-steel welded box type frame. Optional equipment available includes 26.50 x 25 wide-base tubeless tires and auxiliary wheels for transporting the vehicle over highways.

Enter 207 on Reader Card

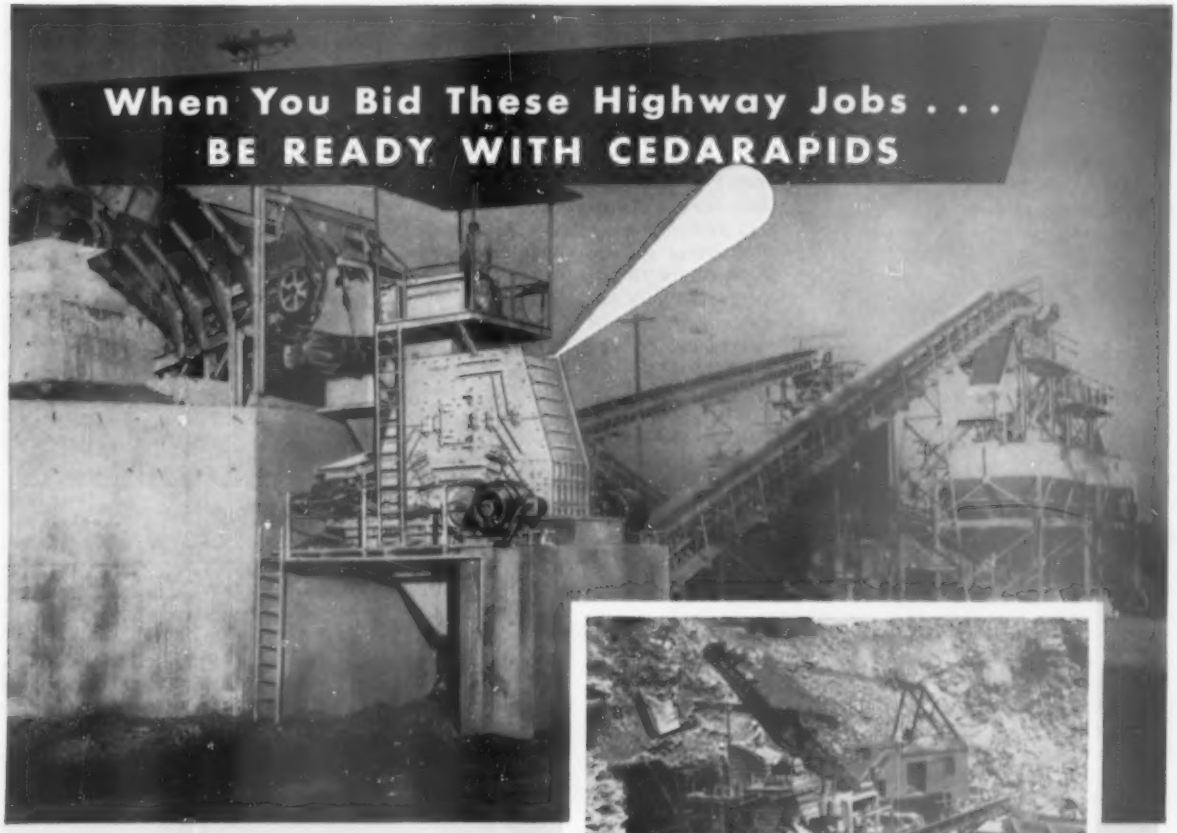


Valve Closure

HUDSON PULP AND PAPER CORP., 477 Madison Ave., New York 22, N.Y., has designed the Seal-O-Matic Sleeve, an automatic valve closure to eliminate sifting in multiwall bags. Designed for use on its sewn-valve multiwall sacks, the new sleeve is said to provide

(Continued on page 160)

When You Bid These Highway Jobs . . .
BE READY WITH CEDARAPIDS



(above) In hard limestone with 16% silica, this 4350H Double Impeller Impact Breaker produced 2400 tons per day, of which 1900 tons are 1" material or larger.

(right) Portable Double Impeller Impact Breaker eliminated dirt and soft stone to meet Kansas Turnpike specifications with 250 TPH production.

You get more specification aggregate from mixed, dirty and wet material with
CEDARAPIDS DOUBLE IMPELLER IMPACT BREAKERS

With specifications getting tougher, and aggregate material often of questionable quality, more and more producers are turning to Cedarapids Double Impeller Impact Breakers. It's one of the most successful money-makers in difficult conditions for either portable or stationary applications. These efficient units are easily adjusted to produce a minimum of fines and crush, selectively, mixed hard and soft material to desired sizes. They work efficiently in wet and dirty material because it won't pack in the breaking chamber.

High ratio of reduction . . . *up to 40 or 50 to 1* . . . produces big tonnages of specification aggregate in one pass. Maintenance is low since the entire area of the breaking chamber is used for reduction by rock striking rock in suspension.

While many of these units are working in limestones, they are also successfully used for gravel, basalt, dolomite, sandstone, iron ore, lead ore, zinc ore and uranium ore. For the complete story, see your Cedarapids Dealer today.

OTHER CEDARAPIDS CRUSHING EQUIPMENT

The complete line of Cedarapids crushing equipment will handle practically any aggregate production problem in portable or stationary plants. Ask about Single or Twin Jaw Crushers, Roll Crushers, and Hammermills, available in a wide range of sizes. Also Horizontal Vibrating Screens, Conveyors, Vibrating Grizzlies, etc.

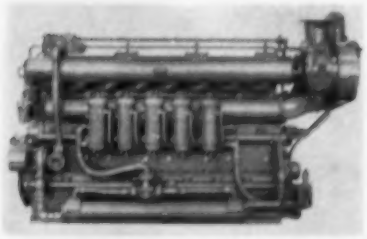
Cedarapids — Built by IOWA

IOWA MANUFACTURING COMPANY
Cedar Rapids, Iowa, U. S. A.

Enter 1321 on Reader Card

effective protection against sifting in loading of cement and lime, and other pelletized, crystal, pulverized, and granular products. The photo shows a pencil pointing to the small amount of material lost through sifting during the loading of a bag having Hudson's Seal-O-Matic sleeve.

Enter 208 on Reader Card



Diesel Engines

WHITE DIESEL ENGINE DIVISION, White Motor Co., Springfield, Ohio, has developed an improved series of industrial diesel engines which can operate exclusively on low-cost fuel. Model 40 Superior Diesel engines, naturally aspirated or supercharged, are available in ratings from 215 to 1025 hp. The new heavy-duty models, designed for use in such heavy equipment as power shovels, as standby power for industrial plants, etc., are built as four-cycle, 6- or 8 cylinder, vertical, in-line engines.

Design features include: improved open chamber combustion for better fuel economy; dual fuel operation on 100 percent oil, or natural gas with pilot fuel injection for ignition—gas from sewage plants also can be used; cold weather, heavy-duty, compressed-air starting system which eliminates the need for storage batteries, airmotors or auxiliary starting engines; same size engines despite higher efficiency and greater horsepower output in supercharged models; rigid, box-type base supporting the crankshaft; constant, full pressure lubricating system with increased pump capacity and improved pump drive; and improved two-valve cylinder heads which reduce the number of parts and simplify construction.

Enter 209 on Reader Card

Modified Sinker Drill

LE ROI DIVISION, Westinghouse Air Brake Co., Milwaukee 1, Wis., has announced modifications of the Le Roi-Cleveland H-10 sinker drill. By increasing the metering limits of the valve and valve block, fast drilling speeds are possible in both hard and soft formations due to the extremely short travel of the valve. The new valve and valve block are interchangeable with those previously used in the H-10 sinker drill.

Enter 210 on Reader Card

Hydraulic Backhoe

HYSTER CO., 2902 N. E. Clackamas St., Portland, Ore., announces the ½-cu. yd. Hydraulic D4 Backhoe, designed for the Caterpillar D4 Tractor. The backhoe can dig down to 13 ft. and load up to 9 ft. 7½ in. A rack-and-gear swing mechanism enable it to swing at uniform power and speed throughout a 240-deg. arc.

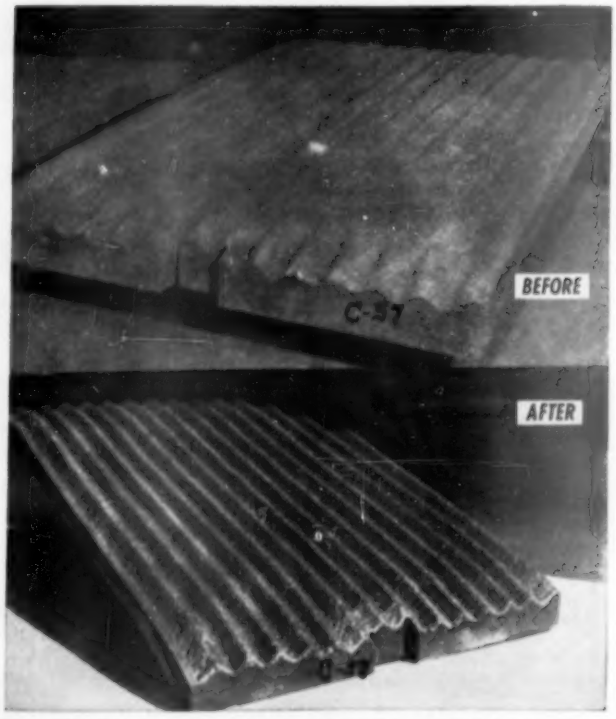
An equalizer allows full track oscillation and retractable hydraulic out-

(Continued on page 162)

Rebuild Your Crusher Plates with two-tone Manga-tone N.M.

Does it make sense to throw away 90% of a manganese plate, just because the rock-producing corrugations are gone? It isn't necessary any more — in fact, it is sheer waste. Your crusher plates can be rebuilt economically with TWO-TONE MANGA-TONE N.M. in any regular Two-Tone Shop. THEY WILL LAST LONGER THAN NEW PLATES. They will fit your crusher "like a die." Every plate guaranteed.

This is an actual unretouched photograph. See how perfectly the plate has been rebuilt. Call in our field man and let us rebuild one for you.



THE RESISTO-LOY CO., INC., Mfrs. . Grand Rapids 7, Michigan

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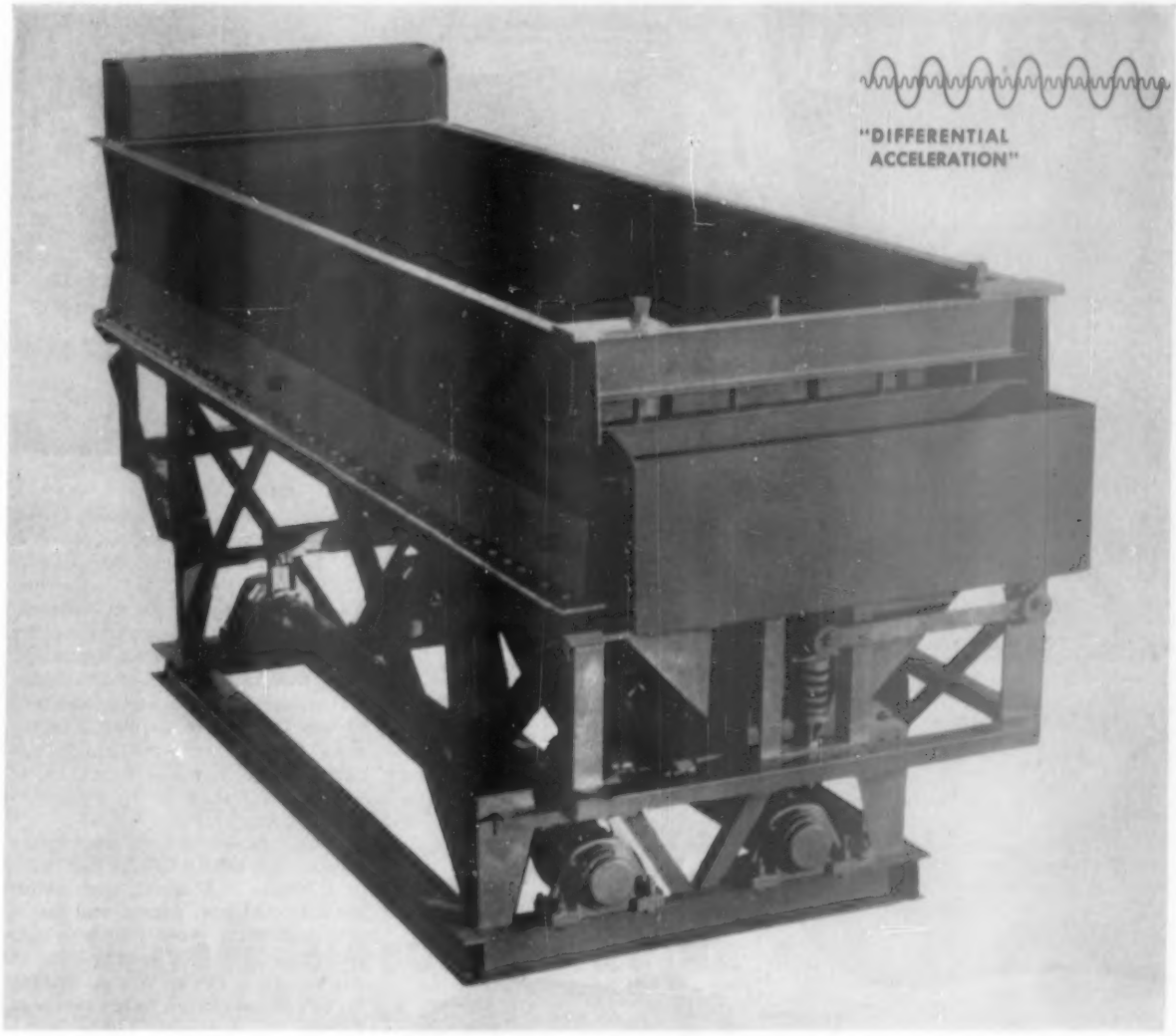
WEMCO INTRODUCES THE REMER JIG



a new tool for sand and gravel cleaning

At Eagle Sand & Gravel Company, Sioux Falls, South Dakota

60 TPH Jig feed contains 6.0 to 10.0% shale.
After Jigging, sand contains only 0.3 to 0.5% shale.*
* (Further elimination can be made with the Remer Jig, but is not required in this specification.)

This gravel deposit also contains iron oxide with a yellow ochre center. The Wemco Remer Jig eliminates 70 to 80% of even this material.

Owner, Robert F. Bruns says, *"We are more than pleased with this phenomenal new machine and at last are able to meet the tighter material specifications."*

Differential Acceleration utilized on the Wemco Remer Jig combined with the long, wide bed, results in a fast moving, completely live jig bed over this large area. This long jig bed provides adequate hutching capacity that saves your fine sand yet eliminates undesirable materials. A typical 5′ x 16′ jig will clean 40 to 60 tons per hour. (Even larger tonnages have been reported.)

If your sand is contaminated by any material of lighter specific gravity, you need the facts on the Wemco Remer Jig. Write today for literature. (Other Wemco products for Sand and Gravel Treatment include Sand Preparation Machines, Sand Pumps and Wemco HMS Mobil-Mills.)

WEMCO
WESTERN MACHINERY COMPANY

650-J Fifth Street, San Francisco 7, California

Representatives throughout the United States and Canada and in major countries around the world.

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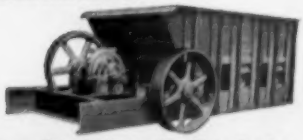
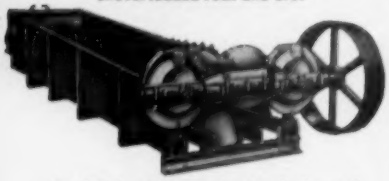
Specify
McLANAHAN
EQUIPMENT
for dependable
low-cost
FEEDING,
CRUSHING,
CLEANING in
PITS, MINES
and QUARRIES

A pioneer in the development of many types of processing equipment, McLanahan has served domestic and foreign pits, mines and quarries for more than a century. Shown are a few illustrations of McLanahan equipment for crushing, washing, sizing and conveying all types of ore, rock, coal and other materials. Technical details and price information will be sent upon request.

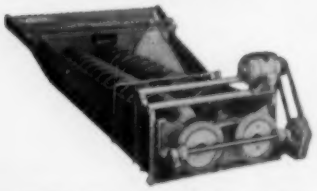
All Steel Rockmaster Single Roll Crusher for primary or secondary work on shovel loaded rock and ore.



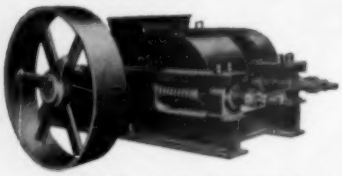
Heavy Duty Reciprocating Plate Feeder. Handles any materials from sand sizes to shovel loaded rock and ore.



Log Washer for removing tough clay and soft rock from various materials.

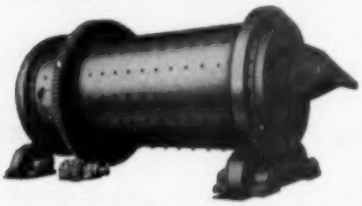


Double Screw Washer (with gear cover removed), for dewatering, classifying and removing waste from sand, limestone and other materials.



Heavy Duty Fabricated Steel Double Roll Crusher for secondary reduction of rock and ore.

Double duty combination Scrubber and Sizing Screen for large and small capacities.



Paddle Mill Scrubbers of various capacities for cleaning large size feed.

write today for complete information

McLANAHAN & STONE
CORPORATION
PIT, MINE AND QUARRY EQUIPMENT HEADQUARTERS SINCE 1835
252 Wall Street, Hollidaysburg, Pennsylvania

Enter 1358 on Reader Card

riggers permit full machine stability. Dippers are available in cutting widths of 13, 21 or 29 in. They are equipped with Esco alloy steel points crimped onto adapters from the bottom for easy replacement.

Enter 225 on Reader Card

Truck Series

DODGE DIVISION, Chrysler Corp., Detroit 31, Mich., announces its new "K" series Dodge truck line for 1957. Advantages claimed for the new line are increased power and load capacities, 3-speed automatic transmissions with push-button driving controls, expansion of power steering and power brakes into all model types, and new styling. The "K" series offers nine engines with 12 different hp. ratings ranging from 113 to 232 hp., representing an increase of 19 percent in power in many models.

Dodge trucks in the low-tonnage classification offer a 120-hp. 6-cylinder or a 204-hp. V-8 engine, and are offered in pick-ups, panels, and stakes with maximum gross vehicle weight ratings from 5100 to 8800 lb. A 4-wheel drive Power Wagon, 18,000-lb. G.V.W., is offered with a choice of 197-hp. V-8 engine or 130-hp. 6-cylinder engine. A smaller Power Wagon, 113-hp., has a maximum G.V.W. of 9500 lb.

Cab-over engine models range up to 201 hp. with 22,500-lb. maximum G.V.W. and 45,000-lb. G.C.W.; 6-wheel models range up to 232 hp. with 46,000-lb. maximum G.V.W. and 65,000-lb. G.C.W.

Three of the new Dodge trucks are pictured in action. From front to back are the 204-hp., 8800-lb. maximum G.V.W., 300 pick-up with dual rear wheels; the 232-hp., 46,000-lb. maximum G.V.W., 900 six-wheeler; and the 197-hp., 21,000 lb. maximum G.V.W., 600 stake.

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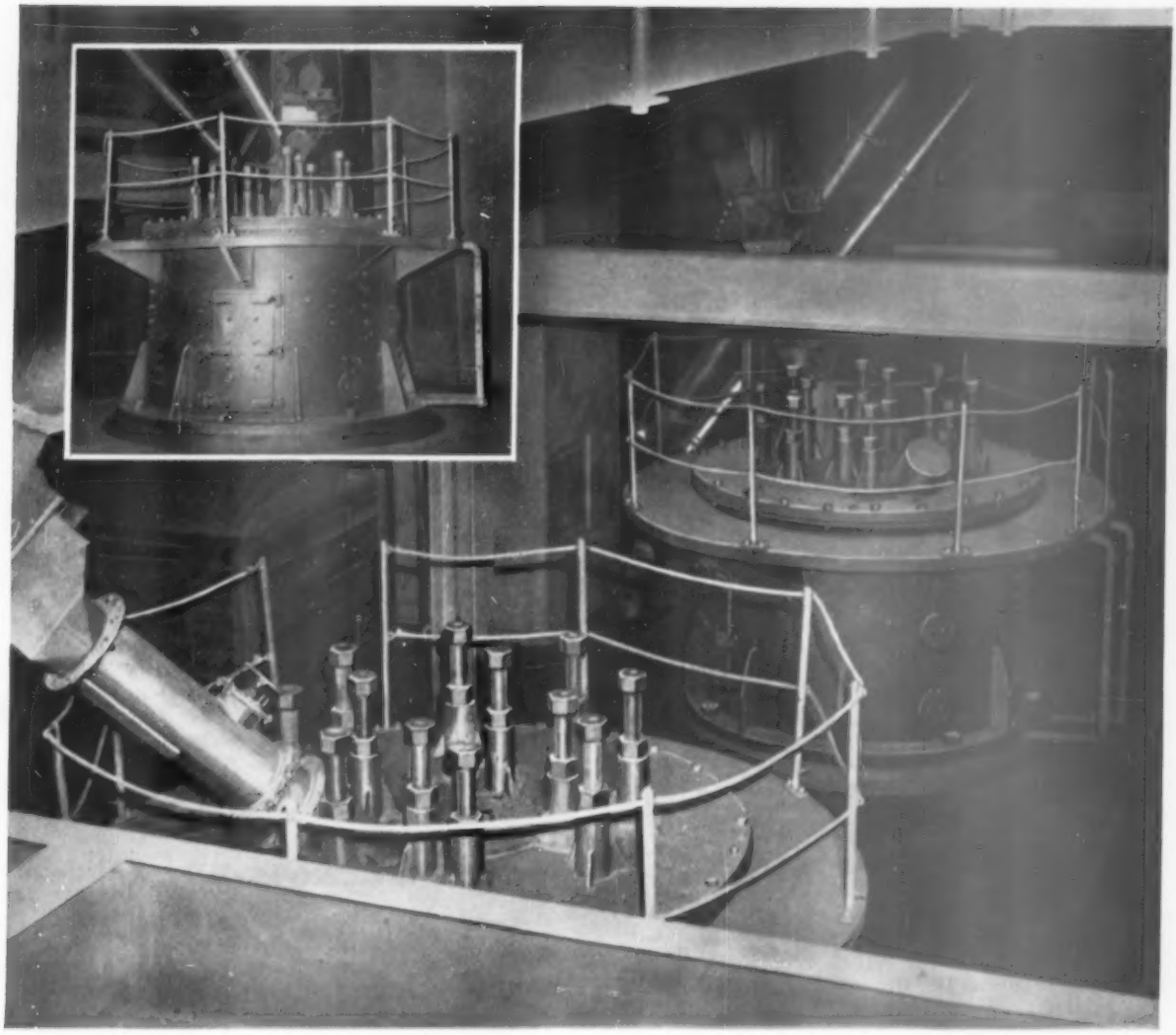
(Continued on page 164)



CLOSED-CIRCUIT GRINDING AT LOW COST

with B&W Type B Pulverizers

At Alpha Portland Cement Company's plant in Cementon, N.Y., two B&W Type B Pulverizers grind raw materials in a B&W Closed-Circuit System. One pulverizer has been in service for about 20 years and the other more than one year. Total capacity is 90 to 100 tons per hour and grindability is about 55 Hardgrove.

Alpha and other users have discovered that long life is built into the grinding elements of B&W Pulverizers. This means efficient, low-cost grinding.

Many long service records prove that B&W Type B Pulverizers require less power, low maintenance and minimum space . . . offer, high fineness, easy access and long life.

For raw grinding economy call on B&W. Write, The Babcock & Wilcox Company, Boiler Division, Process Equipment Department, 161 East 42nd Street, New York 17, N. Y.

BABCOCK & WILCOX

BOILER DIVISION

C-218

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Constant Voltage Welders

HARNISCHFEGER CORP., Welding Division, Milwaukee 1, Wis., has announced a new line of modified constant voltage welders consisting of 300-, 500-, 750- and 1200-amp. machines. Adjustable slope control is said to give a softer arc, eliminate burnback and stubbing, and to provide a stable, spray-type deposit when properly adjusted for aluminum, stainless steel, and other alloys. Advantages claimed for the constant-voltage welding are simplified operation, low installation and power costs, and X-ray welds for inert gas, submerged arc, semi-automatic and all metallic-arc automatic welding processes.

Enter 216 on Reader Card

Thickness Gauge

INDUSTRIAL GAUGES CORP., 42 Grand Ave., Englewood, N. J., is introducing the XactRay Gauge, a non-contact gauge for measuring and controlling thickness of rockwool bats and wallboard. An X-ray beam, the energy of which is transmitted through the material, is employed. The energy is collected by a receiving unit and converted into electrical impulses which actuate the electronic equipment in a main console. From the console equipment are actuated a large-scale, zero-centered meter, a continuous chart recorder or an electromechanical device for actuating sheet rollers in order to control the thickness of material being processed. The gauges operate over wide sheets of material when installed on traversing carriages. Variations from a predetermined standard weight, density or thickness is reported to be held to plus or minus 1 percent.

Enter 217 on Reader Card

Sump Pump

LE ROI DIVISION, Westinghouse Air Brake Co., Milwaukee 1, Wis., has introduced an air-operated sump pump rated at 340 g.p.m. against a 10-ft. head. Operating with a maximum head of 95 ft., the pump features lightweight construction, low air consumption, governor-controlled motor, and built-in lubrication system.

The 8-in. dia. x 23-in. high pump has an air inlet of ¾-in. dia., while the discharge outlet is 2½-in. dia.

Enter 218 on Reader Card

(Continued on page 167)

LINK-BELT Cast Elevator Buckets--

FILL FAST, LAST LONGER

TAKE a look at this construction. No weak spots anywhere in Link-Belt Cast Buckets.

REINFORCED CORNERS and DOUBLE-THICK backs add strength at points of greatest stress.

MALLEABLE IRON OR PROMAL with its ductility, high strength and uniformity helps these buckets stand up under severe service . . . resist abrasive wear and corrosion.

SMOOTH interior with rounded corners is properly proportioned for fast pickup and clean, quick discharge.

Six styles of Link-Belt cast elevator buckets—as well as a complete line of steel buckets—are available in a full range of sizes for handling a wide variety of materials. The ideal combination for your bucket elevators is Link-Belt chains, wheels and buckets. Ask your Link-Belt sales representative or authorized stock-carrying distributor for complete information and for your copy of Link-Belt Standard Products Catalog 950.

14.028

LINK-BELT

CAST ELEVATOR BUCKETS

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office: New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World.

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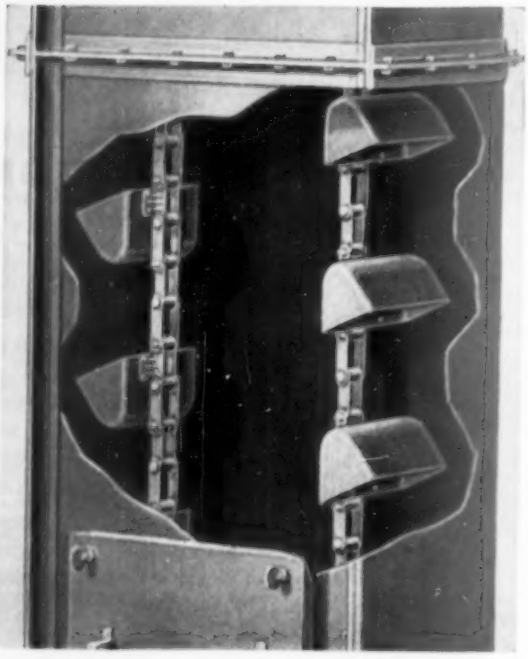

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Rubber-tired rig works fast on watery pit floor

A large Ohio quarry, producing 700,000 tons of limestone yearly, uses one rubber-tired Tournatractor to handle all clean-up and pit maintenance. The tractor covers 325 acres . . . maintaining and building haul roads, moving freight cars, pushing in toe of stockpiles, bunching blasted stone, cleaning around shovel.

6" of water, no barrier

A few days before these pictures were taken, heavy rains left as much as 6 inches of water on the quarry floor. Rolling easily on its big 21:00 x 25 low-pressure tires, the tractor maneuvered in and out of the watery loading area, handled its assignments quickly.

A major Tournatractor advantage when working in rain and water is that all moving parts in its power train are completely enclosed. They operate in a constant bath of oil, sealed against moisture. Lubricants stay in to prevent corrosion and maintain machine's high-operating efficiency and low-maintenance cost.

"Beats crawler on rock"

Foreman Bernard Boli said, "Tournatractor has crawler beat all to pieces on rock . . . gets around 1¼-mile quarry easily. Our biggest reason for buying the Tournatractor was speed." And operator Charles A. Slover said, "Tournatractor is a wonderful machine for the operator. It doesn't beat you around like a crawler. Besides lubricating quickly, and being able to move six 45-ton-load cars, I like the ease of riding."

Perhaps you can use a 208 hp rubber-tired "Quarryman"

To handle widely scattered dozing, pushing, and clean-up assignments, let Tournatractor help you speed operations, save you money. Let us show you owner-verified performance records of Tournatractor on work similar to yours.

▲ Tournatractor moves in between shovel-swings to clean up spillage and doze blasted stone for easier loading. Shovel cycle is not interrupted, because of rubber-tired tractor's sure-footed speed on uneven pit floor.

Tournatractor handles dozing quickly . . . gets good bladeful of rock, moves about 2½ cubic yards in 30-ft. dozing run. Versatile machine handles many other quarry assignments, pushes in blasted stone, cleans up around stockpiles, pulls other equipment around quarry.

▼

Versatile Tournatractor dozes overburden between cleanup and other assignments. Shovel in background removes 6' to 10' of overburden. Tournatractor quickly cleans stone shelf so that production shovels can move in.

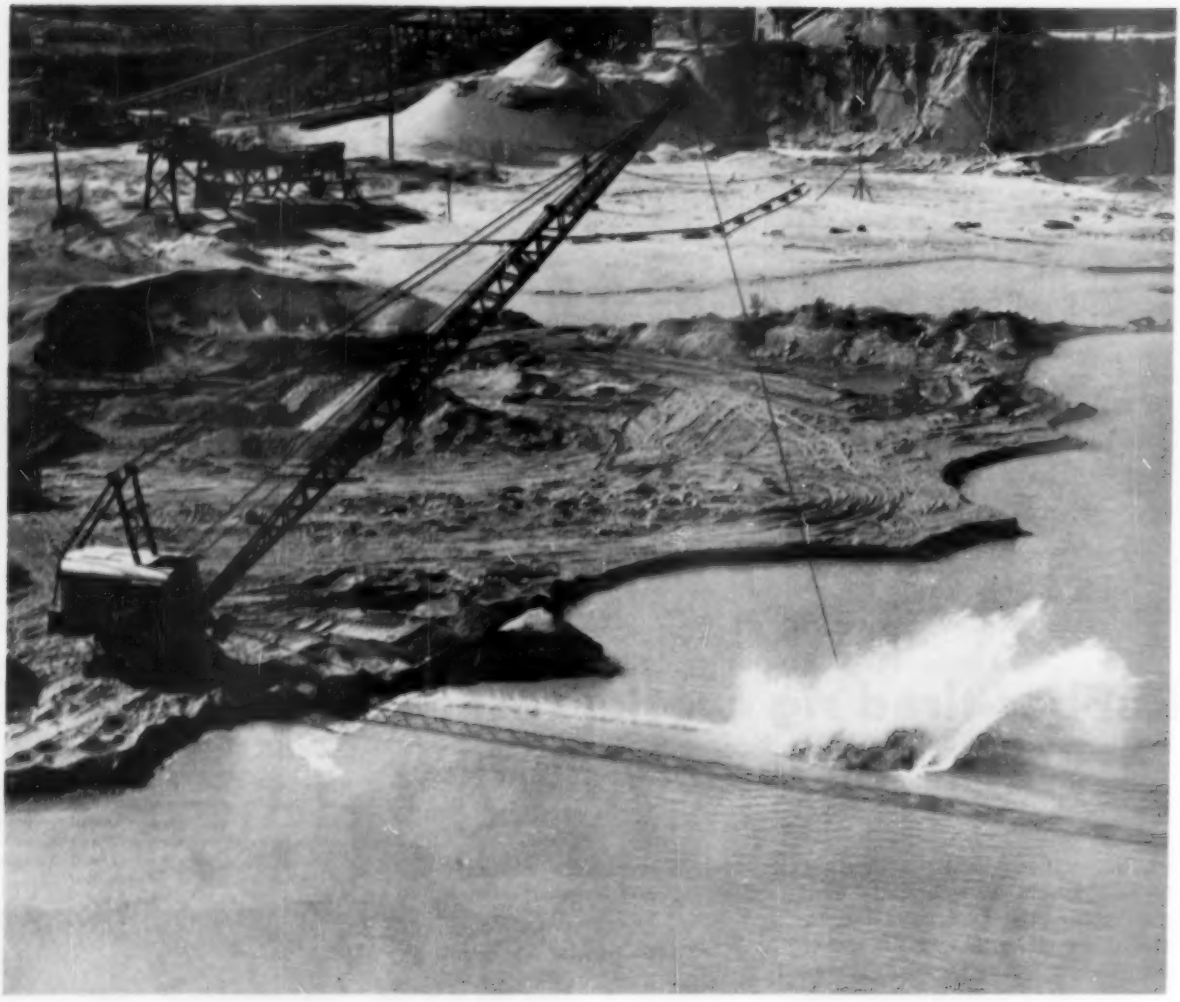
▼

Tournatractor—Trademark Reg. U.S. Pat. Off. T-997-Q-b

LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

ARBA See you at the ROAD SHOW • Chicago • January 28-February 2, 1957



Big Producer

Manitowoc 2-yd. Model 3000 Moves up to 2500 yards in 8 hours

Put a Manitowoc in your pit and watch daily production figures go up! That's what State Washed Sand and Gravel Co. of Milwaukee did when wet pit conditions called for a big output dragline. The company's 2-yd. Manitowoc Model 3000 rig with an 80′ boom has handled as much as 2500 yards of sand and gravel in an 8-hour day. During the year-and-a-half on the job, machine downtime and maintenance has been negligible.

Big Production

Advanced Manitowoc engineering has eliminated all but 17 gears and pinions for direct power flow from the engine to the bucket. This simplicity of design is possible with Manitowoc's exclusive sliding pinion arrangement which permits the use of one set of clutches to drive travel, swing and boom hoist.

Greater Stability

Long, wide-spread crawlers and a rugged, one-piece carbody give you the rock-steady stability needed for full-capacity buckets at long reach. A low center of gravity assures perfect balance for complete safety and top productivity. Large diameter roller path and big main rollers insure even load distribution and perfect stability.

Greater Operator Efficiency

These optional features will enable your operator to always work at top capacity: *Torque Converter* tailors power output to the need. You get smooth performance in every phase of operation. *Air Controls* make operator's job easier, less fatiguing without destroying important "feel" of the rig. *Swing Brake* — manual or air type — slows swing speed and holds the unit in exact position for precise spotting.

Compare Manitowoc!

Your helpful Manitowoc distributor has complete information and specifications on the Manitowoc Model 3000. Compare this unit with comparable rated rigs and you'll put a Manitowoc in your pit today!

MANITOWOC ENGINEERING CORP.
MANITOWOC, WIS.

MANITOWOC
SHOVELS 1-3½ YD. Speedcrane CRANES 20-100 TON

Enter 1235 on Reader Card

Fine Particle Classifier

THE SHARPLES CORP., 2300 Westmoreland St., Philadelphia 40, Penn., announces the Super Classifier, a new fine particle classifier designed on the air vortex principle. The classifier is designed to classify effectively particles in the range of approximately 10 to 125 microns, average size, depending upon the specific gravity of the material. A complete range of Super Classifiers is available, with capacities from 250 lb. per hour to 10 t.p.h. Larger machines are available on special order.

The cut-away view of the instrument shows powder being fed into the intake funnel and distributed to the classification zone. There the coarse particles are carried into the collector rings, from which they are directed to the coarse discharge airlock valve. Fine particles are carried inward and are discharged into the fines discharge scroll.

Enter 219 on Reader Card

Rope Belt Conveyor

GOODMAN MANUFACTURING CO., Halsted St. and 48th Place, Chicago 9, Ill., is introducing the Goodman Rope Belt Conveyor, in which chain-linked idlers suspended between two stationary, parallel wire ropes support the loaded belt. Desired conveyor length can be obtained by combining ropes as needed, and units can be furnished to accommodate belt widths up to and including 48-in. The head and tail ends may be a special Goodman design furnished with the rope belt intermediate section, or the rope belt can be used with any type head and tail end modified to accept the rope belt structure. The latter includes anchors, spaced at 150 to 300 ft.; 6 x 19 regular lay, improved plow steel, usually steel core wire rope; pipe supporting stands, spaced at 20-ft. intervals; conventional style return idler; carrying idler assembly consisting of three deadshaft rolls of 2½-, 4-, or 5-in. dia.; and curved spreaders placed midway between supporting stands.

Operating advantages claimed are hinged action of the linked idler rolls and spring action of wire rope suspension which permits the belt to "hug" the load and prevent its shifting when passing over idlers; self-aligning action of the linked idlers; a cushioning rather than an anvil action at idler rolls to eliminate impact damage to belt; and ample side clearance for return belt to reduce wear. The rope belt conveyor can be used over uneven bottom or to bridge entries without expensive structural support, it is claimed.

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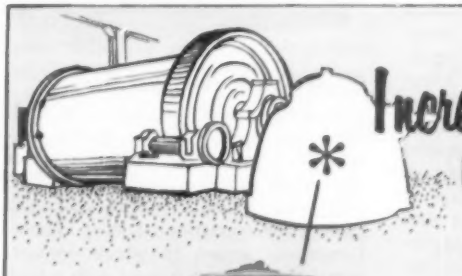

Increased CEMENT PRODUCTION

BRADLEY HERCULES MILLS

* *as a preliminary pulverizer for compartment or tube mills.*

The quickest, most economical way to increase your grinding capacity

For the cement manufacturer with excess kiln capacity . . . here is the answer to INCREASED CAPACITIES at an appreciable SAVING IN HORSEPOWER. The Bradley Hercules Mill, used as a preliminary pulverizer, before compartment mills or tube mills, results in INCREASED PRODUCTION of finished material at a LOWER COST per barrel.

Rugged, dustless construction, maximum accessibility keep maintenance costs at an absolute minimum.

Automatic electrical feed control eliminates manual operation.

For complete information, write for Catalog No. 57

Bradley PULVERIZER CO.

LONDON ALLENTOWN, PENNA. BOSTON

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STEEL

Every Kind

Quick Delivery

Plates, Structurals, Bars, Sheets, Tubes, etc. Carbon, Alloy, Stainless Steels, Babbitt Metal.

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Joseph T. Ryerson & Son, Inc. Plants at New York • Boston • Wallingford, Conn. Philadelphia • Charlotte, N.C. • Cincinnati Cleveland • Detroit • Pittsburgh • Buffalo Chicago • Milwaukee • St. Louis • Los Angeles • San Francisco • Spokane Seattle.

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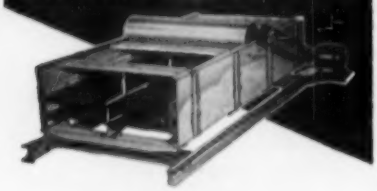
UNIVERSAL

OFFERS THE BEST IN VIBRATING SCREENS AT THE LOWEST PRICE



Before you buy, be sure to get a copy of the new UNIVERSAL Catalog #150!

There's a model to fit your particular requirement, priced within the smallest budget.

Write today for free catalog #150!

UNIVERSAL VIBRATING SCREEN CO.

Racine, Wisconsin

Quality Screens Since 1919

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Track-Mounted Wagon Drill

CHICAGO PNEUMATIC TOOL CO., 6 East 44th St., New York 17, N.Y., has brought out the G-800 Tracdril, a self-propelled, one-man operated track-mounted wagon drill. It is designed for mounting a heavy-duty 4-in. Drifter, and for soft formation drilling, it can mount a CP-556 Rotauger. Two "Power Vane" reversible tramming motors enable the G-800 to tow its own air compressor around the drilling area. Each track is independently powered by one of the two 6-hp. motors. Spring-loaded "dead man" type motor controls are said to give instantaneous forward-back or pivot control, returning to neutral when released.

During the drilling operation, the G 800 is uncoupled from the compressor and, within hose limits, moves from hole to hole. A 365-c.f.m. rotary compressor provides full operating efficiency. The Tracdril has a "knee-action" construction to compensate for ground irregularities, which keeps the adjustable, hydraulically-operated U-arm support for the drill carriage relatively level. The drill carriage is adjustable for high top-hole or toe-hole drilling. Additional features include a track-lock that prevents the unit from moving during drilling, and standard Oliver tracks. In the illustration, four Tracdrills are shown in action.

Enter 221 on Reader Card

Heavy-Duty Trucks

GMC TRUCK & COACH DIVISION, General Motors Corp., 660 S. Boulevard, East, Pontiac 11, Mich., provides a wide spread in hauling capacities in trucks of its heavy-duty line, ranging from four-wheel gasoline models with 22,000-lb. gross vehicle weight to tandem-axle vehicles with 90,000-lb. gross combination weight.

New models include the FW550, dual-purpose, tandem-axle tractor, and the tandem-axle W670. The former has a front axle rated at 14,000 lb. and a 34,000 lb. rear axle, a 5-speed syncro-mesh transmission, 210-hp. V-8 engine, and power steering. The W670 has a 59,000-lb. gross vehicle weight and a 90,000-lb. gross combination weight, and offers a choice of an 11,000- or 14,000-lb. front axle and a 48,000- or 50,000-lb. rear axle. Standard equipment includes a 5-speed main and 3 speed auxiliary transmission, 225-hp. gasoline engine, and double channel frames.

Horsepower increases in the gasoline engines are emphasized in new models of GMC's heavy duty line, as are expanded use of V-8 engines. Tandem-axle vehicles have inter-axle differentials.

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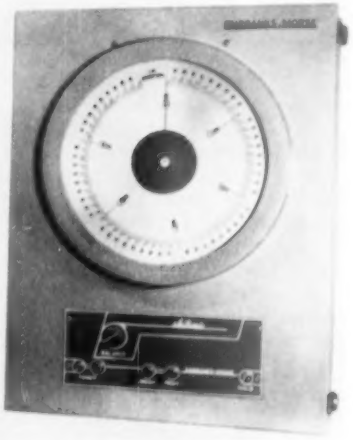

Electronic Scales, Batchers

FAIRBANKS, MORSE & CO., 600 S. Michigan Ave., Chicago 5, Ill., announces a new line of electronic scales and weigh batching instruments: Full Electronic scales, in which load cells replace the conventional lever system; Levetronic scales, in which conventional lever system is used with a load cell hooked in tension in the steelyard rod; the Batchetron, an electronic control system for batch weighing of material; and the Fairbanks-Morse E P C — Electronic Program Control—an automatic batch control unit which operates from a prepunched card.

Standard instruments in the line of the Full Electronic scales are Model CR, with automatic balance detection, hold or memory circuit, automatic ranging, zero balance knob, net-gross switch and printer with selective "print" and "weigh" buttons; Model C and wall-mounted Model CW, both similar to the CR, but without the printer and net-gross switch; and Model CDO (illustrated), designed for use where data processing equipment is used, integrating weights and associated data.

Enter 223 on Reader Card

FUMBLING MANAGEMENT

(Continued from page 85)

ingly, wives and children should be made a part of the company organization—at least to the extent of including them in any honors won by the husband and father, of explaining to them new company policies which will directly affect their home-making problems, and providing an occasional affair where company employes and their families can get together, particularly on occasions significant to company operations such as the opening of new facilities or the celebration of company triumphs.

13. Are departing employes good-will ambassadors for your company?

One of the most common—and most foolish—mistakes made by management today is the rather general tendency to part company on a basis of mutual bitterness with employes who have been offered what they consider a better job elsewhere. The most potent good will ambassadors any organization can have are the ranks of its ex-employes, scattered throughout other businesses and other geographic locations. If these people have a good feeling toward your company, they can do you a tremendous amount of good; if the converse is true, they can hurt you considerably—and the converse is true much too often.

The most patent childishness I've ever witnessed are the management officials who wallow in resentment over the employe for whom they have "done everything" and who rewards them by taking this experience elsewhere. In the first place, management is looking at the problem through entirely different eyes than is the employe, and management should recognize this fact and make some effort to readjust its point of view. Secondly, a certain number of these defections are going to take place as a result of circumstances beyond management's control, no matter how idyllic the organization, and they should be accepted as a calculated business risk. Finally, when a man has decided to leave, it is certainly to the benefit of the organization to send him away with as good a taste in his mouth as possible. Any other course, deliberate or otherwise, is ridiculous. And if these defections are happening too often, management had better take a long, hard look at its internal policies.

From a purely selfish standpoint, company officials simply can't afford to ignore or slough off human relations. Even those crusty rugged individualists who still look on personnel relations as unnecessary and foolish coddling of adult human beings

(Continued on page 170)

WHERE SLY COLLECTS DUST IN CEMENT MILL OPERATIONS

CRUSHING

GRINDING

SCREENING

SEPARATION

FEEDING

CONVEYING

ELEVATING

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SILO FILLING

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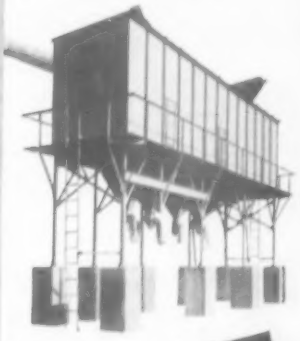
SLY—the most widely used Dust Filters in the Cement Industry.

Designers and Manufacturers of: Dust Control Systems, Blast Cleaning Equipment, Tumbling Mills, Industrial Ovens.

For all these operations SLY Dust Filters are in use in hundreds of cement plants in the U. S., Canada, Mexico, South America, Cuba, Puerto Rico, Greece, Israel and other countries.

Made in various types and sizes to fit air volumes and operating conditions, SLY Dust Filters *get all the dust.*

SLY has rendered engineering service to cement plants for over 35 years. This valuable experience is available to you. Let's discuss *your* dust problem.



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THE W. W. SLY MANUFACTURING CO.

SINCE 1874

4746 TRAIN AVENUE • CLEVELAND 1, OHIO
Offices in Principal Cities

Please send me your Bulletin 98

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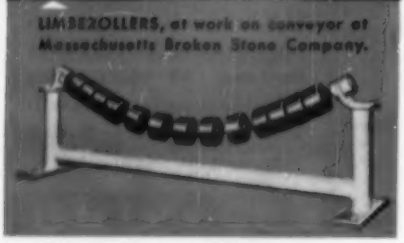
A satisfied customer writes about JOY
LIMBEROLLER
Belt Conveyor Idlers:

LIMBEROLLERS, at work on conveyor at Massachusetts Broken Stone Company.



"Early in 1955 we decided to try four Joy Limberollers on the No. 1 slope conveyor from the primary gyratory crusher in the quarry.

"This conveyor carries the product of the primary crusher set at about 5', on a 12 degree slope and running at about 450 feet per minute. Originally designed for 400 ton per hour capacity, there have been surge loadings of twice this amount.

"While the balance of the conveyor system is the enclosed gallery type, the No. 1 slope conveyor was not fully completed before the start of production season and consequently ran all year exposed to all kinds of weather.

"The Limberollers have carried a few hundred thousand tons of heavy stone with absolutely no maintenance. On the basis of this record we have placed repeat orders."

Richard L Robinson

Richard Robinson, Treasurer
MASSACHUSETTS BROKEN STONE COMPANY

The Joy Limberoller resists dust, abrasion, corrosion and material buildup. Resilient discs on a flexible steel cable conform to load and cushion the belt. Only two bearings are used and these are up out of the dirt zone. Get details from *Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.* In Canada: *Joy Manufacturing Company (Canada) Ltd., Galt, Ontario.*

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Consult a Joy Engineer
for AIR COMPRESSORS • ROCK DRILLS
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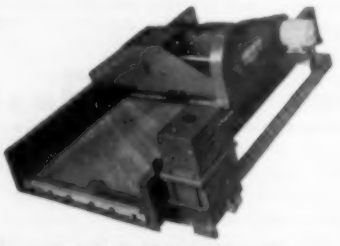
The New Model E Leahy® Screen Presents INTEGRATED HEAT SCREENING *

New construction makes FlexElex heating an integrated part of the Leahy vibrating screen . . . not just a heating attachment.

Designed for highest electrical and thermal efficiency; every part, every component has been integrally engineered to put the required heat into the mesh with a minimum of current consumption.

For lime, ag-lime and silica sand, this is it! * © 1956



Made by the Original Deister Co.
Incorporated 1906

The DEISTER CONCENTRATOR COMPANY, INC.
915 Glasgow Avenue, Fort Wayne, Indiana

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must surely realize that the most profitable, most efficient and most productive organization is the one where workers at *all* levels are putting the most into and therefore getting the most out of their jobs. And that, again, means the workers who are getting the remuneration, recognition, and satisfaction they must have.

Management executives have a tremendous capacity for kidding themselves. They tend to judge the attitude of other professional employes by their own attitude. Thus, because they are devoted to the organization, content with what is probably a considerable salary, and have wives who are either satisfied with or apathetic to the company, they assume that all other professional employes feel likewise. T'ain't so, and this type of reasoning has been responsible for lack of efficiency near the top in many organizations.

Here is a fertile field in which to increase harmony and thereby efficiency in your company with a very small investment in time and trouble. Every business organization sorely needs a sense of humor and an objectivity that enables it to step back and survey itself once in awhile. A business is, after all, an overgrown individual. It has a character all its own. If that character appears to its employes to be sincerely warm and understanding and generous, then that same attitude will be reflected by the employes toward the company. There is great need today for companies in the rock products field to cultivate this attitude where the ground is most fertile — in its managerial employes.

A.S.T.M. Proceedings

AMERICAN SOCIETY FOR TESTING MATERIALS has published the 1955 edition of A.S.T.M. Proceedings which records the technical accomplishments of the society for the year 1955. Included are many technical reports and papers, together with discussion which has been offered to the Society during the year and not previously published. The table of contents also lists all symposiums published separately and all papers published in the A.S.T.M. Bulletin. Copies are available ($12 each) from the American Society for Testing Materials, 1916 Race St., Philadelphia 3, Penn.

New Thailand Plant

THAILAND IRRIGATION DEPARTMENT has awarded a contract for construction of a cement plant at Tha Klee, near Chainat. The capacity of the new plant will be 60,000 t.p.y.

The Universal 293QS on a road construction site west of Tremonton, Utah, 1955.

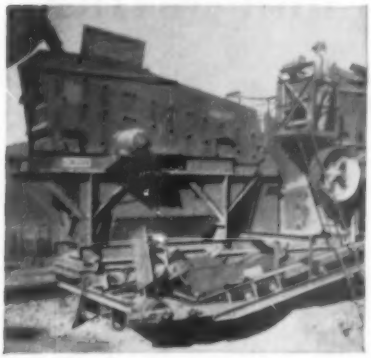
The Universal 293QS TwinDual Gravel King has

"Increased our pay load by 33⅓%, lowered operating costs 10c per ton"

Says Jed R. Abbott of Germer, Abbott & Waldron Construction Company, Tremonton, Utah

Abbott's company saved $20,000 on its first large order for aggregate produced by the Universal 293QS.

"After turning out 200,000 tons of material for U.S. Highway 91 last year," said Abbott, "this is the most economical plant we've ever operated. Our payload is a third more and our costs were ten cents a ton less than with other crushing equipment.



More than a gravel producer

The 293QS is the most versatile machine on the market—two plants in one! Inquire how you can convert it quickly from gravel to crushed stone production and back again.

"On the Highway 91 job, it took three D-8 Cat dozers and a scraper to feed the 293QS. The plant we were using before required only one D-8. That'll give you an idea of the difference in capacity."

You'll have a story to be proud of, too, when you work with the Universal 293QS. Producers are enthusiastic about the ability of this plant to make up for lost time. As Jed Abbott puts it, "The severity of Utah weather could mean the loss of much production, but with the Universal 293QS we have the capacity to fill larger orders, fill them faster, charge less and make more money in the long run."

Nearly everyone, like Germer, Abbott and Waldron, goes through seasonal or other costly shut-downs. Costly, that is, unless like Germer, Abbott & Waldron, you've discovered crushing equipment like the Universal 293QS — designed to recapture time lost — at a profit!

Write for complete facts on the Universal 293QS Gravel King now.

Volume production through improved design

Finished material on final belt. Exclusive Universal TwinDual roll crusher permits up to 100% wider discharge opening of the extra-large primary jaw crusher. Jaw efficiency increased by pre-screening pit-run material before entering crusher.

PETTIBONE UNIVERSAL
In Cedar Rapids Since 1906

UNIVERSAL ENGINEERING CORPORATION

617 C Avenue, N.W., Cedar Rapids, Iowa

Subsidiary of Pettibone Mulliken Corporation, 4700 W. Division Street, Chicago 51, Illinois

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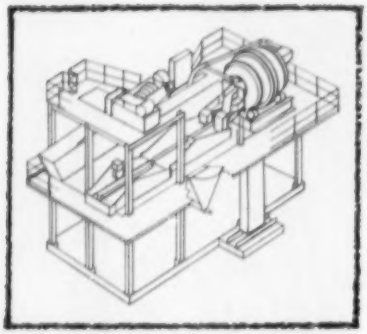

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are the most widely preferred HMS plants because they provide ***proven design at predetermined cost — trouble-free operation from the first day.***

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WESTERN MACHINERY COMPANY

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Offices and representatives in principal cities of the United States and Canada and in major countries throughout the world.

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P.C.A. Official Dies

A. J. R. CURTIS, retired assistant secretary and safety consultant of the Portland Cement Association, Chicago, Ill., died November 10. He was 69 years of age. For many years Mr. Curtis was safety director of the P.C.A., and in 1947 was awarded the Joseph A. Holmes medal of honor for his contributions to safety in the cement industry. He joined the Association in 1916 as director of extension, and was in charge of the Accident Prevention Bureau from 1926 to 1951. During that time he was responsible for many innovations promoting safety in cement mills and quarries. Mr. Curtis was a member and past president of the American Society of Agricultural Engineers, secretary of the National Conference on Concrete House Construction, past secretary of the Cement and Quarry Section of the National Safety Council and a member of the executive board. He was also a member of the President's Conference on Industrial Safety, Industrial Hygiene Foundation, American Industrial Hygiene Association, and American Society of Safety Engineers.

Scholarship Program For Ceramics Students

PENNSYLVANIA GLASS SAND CORP., Lewistown, Penn., hopes to alleviate the shortage of graduate ceramic engineers available to industry by the establishment of its Merit Award Scholarship Program, in which 12 universities are participating.

Universities taking part are Alfred University, Georgia Institute of Technology, Iowa State College, Penn State University, Clemson, Ohio State, Rutgers University, University of Texas, University of Illinois, University of Missouri School of Mines and Metallurgy, University of Washington and Virginia Polytechnic Institute.

The scholarships, each worth approximately $400, are available to seniors studying either ceramics or ceramic engineering.

Blasting Damage Disclaimed

WALKING AND OTHER NORMAL use of a building usually causes more vibrations than blasting in nearby quarrying operations, according to Dr. L. Don Leet, Harvard University seismologist and professor of geology. In a meeting at the University of Rhode Island, Dr. Leet stated that ground waves from blasting "have been badly abused in connection with claims of damage to property from them."

Property owners, said Dr. Leet, claim damages which would not be caused by a strong earthquake, when the vibrations actually are smaller than those caused in routine wear by the building's occupants.

Safety Talks

NATIONAL SAFETY COUNCIL has published a new volume of "Five-Minute Safety Talks for Foremen." It contains 52 talks designed to build sound attitudes on accident prevention, all written by Roland Blake, an authority on industrial accident prevention. Information on securing the book can be obtained from National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

Correction

RUTGERS UNIVERSITY BUREAU OF MINERAL RESEARCH, New Brunswick, N. J., has published Bulletin 7, "Raw Materials for Lightweight Aggregate Production in New Jersey," copies of which are available from the Bureau at $2 per copy. The bulletin was erroneously listed as being available free of charge in the September issue of ROCK PRODUCTS. We regret this mistake.

You're Sure with Merrick

FOR Positive Controlled Feed by Weight of Sand Gravel, Lime Clinker, Gypsum or other materials to Process—

Use the Feedoweight

Merrick Scale Mfg. Co.
Passaic, New Jersey

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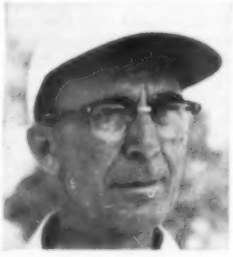
"AMSCO® is the only pump we can use in our speeded-up production system"



To increase production at least 50% by jet-induced suction, equipment is stepped up from a normal 505 rpm to 720 rpm at Holloway Gravel Co., Inc. According to J. M. Hallman, superintendent at this company, "The Amsco is the only pump we can use under this speeded-up system and the only one that we would ever try to use. It is a very, very rugged pump . . . it has to be for our work."

Holloway has loaded up to 15 cars—10 cars of gravel and 5 of sand—each hour for an eight-hour period using this stepped-up production method.

Holloway uses four 10" Amsco Counter-Flow pumps. Deposit averages 40% sand, 30% gravel, balance overburden. Total lift is 60 to 65 feet—pipelines up to 1500 feet in length have been used.

According to Mr. Hallman, "In our opinion, the Amsco gives maximum performance. Considering the extreme use we make of it, it exceeds expectations in the matter of maintenance and down time due to repair."

QUICK FACTS ABOUT AMSCO PUMPS

Whether your dredging operation is large or small, you can get an Amsco Dredge Pump to handle the job. Standard sizes range from 6" to 20" discharge openings. Larger sizes are also available. An Amsco Pump Engineer will be glad to discuss your requirements, or write for Bulletin 1052P, giving full information and specifications on the Amsco line.

AMERICAN Brake Shoe COMPANY

AMSCO

American Manganese Steel Division • Chicago Heights, Ill.

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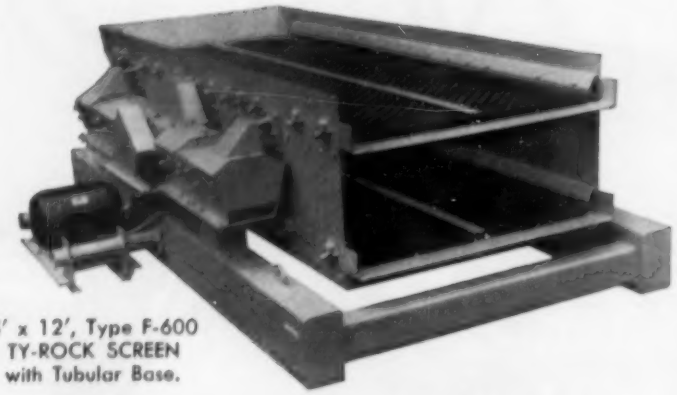

5' x 12', Type F-600 TY-ROCK SCREEN with Tubular Base.

TYLER VIBRATING SCREENS AND TYLER WOVEN WIRE SCREENS

There is a Tyler Vibrating Screen for every sizing and dewatering job. Tyler Screens are noted for the huge tonnages handled with top efficiency and low cost per ton.

Tyler Woven Wire Screens are made in all meshes and metals in over 10,000 different specifications. Ton-Cap and Ty-Rod Screens with the long-slot openings provide the greatest capacity for a given discharge area.

THE W. S. TYLER COMPANY
CLEVELAND 14, OHIO
Manufacturers of Woven Wire Screens and Screening Machinery

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MORE TONNAGE with FORGED STEEL DROP BALLS

MORE PROFITABLE, EFFICIENT SECONDARY BREAKAGE.

2000 to 12000 lbs.

WRITE FOR PRICES AND INFORMATION

The "Cape Ann" Forged Steel Drop Ball is standard equipment in up-to-date quarries. It has a forged connecting link, protected by deep recess, adaptable for swivel or shackle. Strong alloy steel pin. Low cable replacements. Furnished complete as shown.

CAPE ANN ANCHOR & FORGE CO.
P. O. BOX 360 GLOUCESTER, MASS.

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MANUFACTURERS NEWS

Allis-Chalmers Mfg. Co., Milwaukee, Wis., announces that W. J. Klein has been appointed vice-president and director of sales, and W. L. Voegeli has been named general sales manager, tractor group. Mr. Klein has been vice-president and general sales manager of the group, while Mr. Voegeli has been assistant director of engineering. Robert A. Stripe has been appointed to the plant design section of the processing machinery department where he will be engaged in layout work on mining and cement plants.

W. J. Klein

Charles F. O'Riordan has been made manager of the midwest region of the industries group, with headquarters in St. Louis. He succeeds J. F. Burrus, recently named an assistant general manager in the power equipment division. Mr. O'Riordan was formerly manager of the Atlanta district and will be succeeded by Joseph M. Duncan, a sales representative in the New Orleans district since 1951. G. C. Conn, manager of the York district of the industries group since 1947, has been appointed manager of the Buffalo district, succeeding Henry E. Weiss, who has been named a special representative at Buffalo, where he will be succeeded as manager by MacGregor G. Jones, a sales representative at York since 1947. O. V. Tally, director of industrial sales of the industries group, has been named manager of the Washington district and will be in charge of all Washington operations for the industries and tractor groups. R. N. Landreth, who has been manager of the Washington district since 1950, has been assigned to the industries group sales staff. Donald E. Alworth has been appointed service engineer for the Rocky Mountain region of the industries group, with headquarters in Denver.

W. L. Voegeli

Towmotor Corp., Cleveland, Ohio, has announced acquisition of Gerlinger Carrier Co., Dallas, Ore., manufacturers of large capacity fork lift trucks and straddle-type industrial trucks, which will be operated as a wholly-owned subsidiary of Towmotor. C. E. Smith, president of Towmotor, will be chairman of the board and chief executive officer, and Victor O. Williams, executive vice-president of Gerlinger, will be president of the subsidiary. A new service branch has been opened at Camden, N.J., to serve the Delaware Valley area. Manager of the Camden branch is W. G. Wilhelm, assisted by W. M. Keene, Jr., as branch service manager.

Dust Suppression & Engineering Co., Lake Orion, Mich., has moved its administration offices, engineering department and testing laboratory to 120 S. Broadway. Elbridge M. Smith has joined the engineering staff as assistant chief engineer.

Orton Crane and Shovel Co., Chicago, Ill., has announced the appointment of Judge Daniel A. Covelli of the Superior Court of Cook County as executive vice-president and treasurer of the firm.

Colorado Fuel & Iron Corp., New York, N.Y., has announced the re-election of A. F. Franz as president of the company, with Charles Allen, Jr., continuing as chairman of

the board. Other officers re-elected are Carl W. Meyers, vice-chairman; A. C. Bekaert, vice-president of finance; Franklin Berwin, vice-president; F. S. Jones, vice-president of sales; J. J. Martin, vice-president of operations, western division; Hubert C. Smith, vice-president of operations, eastern division; H. C. Allington, vice president of sales, eastern division; H. C. Crout, treasurer; D. C. McGrew, secretary; and Earl D. Page, controller.

Stephens-Adamson Mfg. Co., Aurora, Ill., announces the transfer of Charles Wilber from the Chicago engineering-sales office to the New York office and the appointment of Robert Zilly, formerly advertising manager, to succeed Mr. Wilber in the Chicago engineering-sales office. Other appointments include: Wally Roth, engineering sales representative for the engineering division in Illinois, Iowa, Wisconsin and Indiana; Glen Johannsen, assistant general manager of sales-engineering production, Los Angeles plant; and Allen Carlson, territorial manager for Standard products division in Minnesota, Iowa, North and South Dakota and Montana.

Euclid Division, General Motors Corp., Cleveland, Ohio, has announced appointment of the following district sales representatives: Blane Currence in Colorado, Wyoming, Nebraska, Arizona and western Texas, with headquarters in Denver; Donald Stone in Illinois, Wisconsin, eastern Missouri, eastern Iowa and Lake County, Ind., with headquarters in Chicago; William H. Schwagmeyer in Florida, Georgia and Alabama, with headquarters in Atlanta; Mark Coons in eastern Tennessee, North and South Carolina, with headquarters in Charlotte; and Kenneth Underwood in New York State and New Jersey, with headquarters in New York.

The Yale & Towne Mfg. Co., Philadelphia, Penn., has announced the appointment of Walter S. Maranuk as manager of the Pittsburgh sales and service branch. He was formerly vice-president and director of Northland Equipment Co., Detroit, Mich. Eric B. Insley and J. N. McEntee, formerly associates in the Insley-McEntee Equipment Co., Yale & Towne distributor, have been named manager and sales manager, respectively, of the materials handling division Los Angeles sales and service branch.

Electric Storage Battery Co., Philadelphia, Penn., has announced the promotion of Cody M. Murray to manager of industrial relations. He was formerly assistant to the general manager of the Stokes molded products division, Trenton, N. J. William C. Faust has been appointed manager of public relations. He was formerly public relations director for Geare-Marston, Inc.

American Hoist & Derrick Co., St. Paul, Minn., has acquired the Lebus Rotary Tool Works, Inc., Longview, Texas, manufacturers of drop forged tools, in an outright purchase of the complete plant, certain product inventory and major facilities. John McEvoy, fomerly general manager of the South Kearny, N. J., plant, will be general manager of the Texas plant.

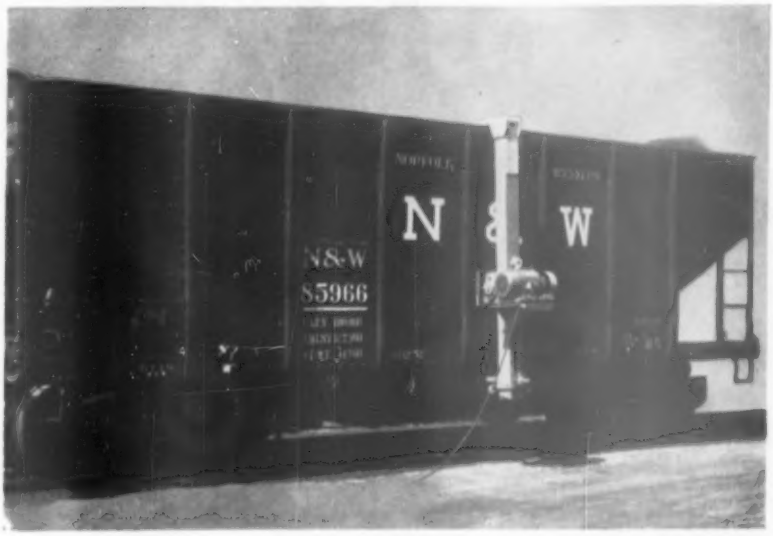
Construction Machinery Co., Waterloo, Iowa, has announced the appointment of James W. Maxwell as manager of the research and development department. For the past eight years he has been owner and operator of the Maxwell Specialty Co., Cedar Falls, Iowa.

Shea Chemical Corp., Jeffersonville, Ind., has appointed Dr. William F. Waldeck as technical director. Before joining the company Dr. Waldeck was director of research for the Wyandotte Chemicals Corp.

Woolridge Manufacturing Div., Continental Copper & Steel Industries, Inc., San Francisco, Calif., has opened a factory parts warehouse at 4817 Lake St., Melrose Park, Ill.

(Continued on page 176)

the NATIONAL CAR SHAKER costs little – works hard



Profits for you are the result of the National Car Shaker—profits derived from the fast, efficient, complete unloading of aggregates with only **one** operator.

The National Car Shaker combines low cost with the best engineering principles such as all-welded box girder frame, patented rubber-to-rubber motor mount, hardened bolts and nuts and triple V-belt drive.

Many years of trouble-free operation are yours with the National Car Shaker. The first one produced is still in daily operation after eight years of the roughest work.

Write for full information on the money-saving National Car Shaker today—right now.

NATIONAL CONVEYOR AND SUPPLY COMPANY

356 N. Harding Ave. Chicago, Ill.

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Keep hard to handle materials on the move through bins, hoppers, chutes

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Pulsating Magnet

ELECTRIC VIBRATORS

Syntron Electric Vibrators are specifically designed as an efficient, economical means of keeping stubborn materials on the move. Eliminate work stoppages due to arching and plugging of material supply lines. Quality built and powerful, they set up a flow of 3600 controlled vibrations per minute that keep the most stubborn materials free flowing. Provide long continuous service with little or no maintenance. Available in a wide range of sizes to meet every requirement.

OTHER SYNTRON EQUIPMENT
OF PROVEN DEPENDABLE QUALITY

FLOW CONTROL VALVES	TEST SIEVE SHAKERS	HOPPER LEVEL SWITCHES	ROCK DRILL

Write for complete catalogue—FREE

SYNTRON COMPANY
450 Lexington Ave. Homer City, Penna.

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Oshkosh Motor Truck, Inc., Oshkosh, Wis., has announced the election of John P. Mosling as president to succeed his father, B. A. Mosling, who has been named chairman of the board. John Mosling started with the company during school vacation periods. From 1937 to 1940, he was a sales representative and subsequently became assistant sales manager, sales manager, vice-president, and executive vice-president. B. A. Mosling, with his father, J. P. Mosling and William Besserdick, incorporated the predecessor company, Wisconsin Duplex Co., in 1917, which later became Oshkosh Motor Truck, Inc. The newest addition to the Oshkosh truck line is the series of ready-mixed concrete carriers.

John P. Mosling

Lamson Corp., Syracuse, N. Y., operating subsidiary of Lamson Corp. of Delaware, has announced formation of two separate sales and engineering groups—engineered systems and allied products. Carroll Hennessy, newly elected vice-president, will manage the engineered systems, and Vernon C. Story will manage allied products. Harry C. Keller has been elected a vice-president in charge of new product research and certain special developments. Also elected were O. W. Acheson, vice-president in charge of manufacturing operations and standard product improvement; Francis D. Weeks, first vice-president; William J. Fenwick, treasurer and controller.

Blaw-Knox Equipment Division, Blaw-Knox Co., Pittsburgh, Penn., has announced the appointment of H. R. Loxterman as general sales manager, and Edward W. Pottmeyer as manager of engineering and development. Mr. Loxterman succeeds Arthur A. Levison, who has been assigned to the staff of E. C. Rook, vice-president and general manager of the fabricated products group. Mr. Pottmeyer succeeds A. H. Jackson, who was recently advanced to general manager of the division.

Baldwin - Lima - Hamilton Corp., Waltham, Mass., announces that the electronics and instrumentation division has opened a new plant in Waltham for the manufacture of SR-4 transducers and related instrumentation, as well as test machines, accessories and grips, formerly manufactured at O. S. Peters Co., Washington, D, C., Sonntag Scientific Co., Greenwich, Conn., and the Ruge de Forest plant, Cambridge, Mass.

H. K. Porter Co., Inc., New York, N.Y., has announced the appointment of Allen M. Harrelson as vice-president and treasurer, with headquarters in Pittsburgh. Maurice M. Muse has been named district sales representative for Lesehen wire rope division in eastern Kentucky and Tennessee and northern Alabama.

F. L. Smidth & Co., New York, N.Y., has opened a new plant at Lebanon, N.J., which is an extension of the existing plant facilities. Transfer of machinery from the existing plant has been completed and new machine tools installed.

Edick Laboratories, Inc., Milwaukee, Wis., has appointed Lou Bucheit as sales representative in western New York and western Pennsylvania. The firm develops chemicals and electronic equipment for the concrete products industry.

Dorr-Oliver, Inc., Stamford, Conn., announces the appointment of Henry W. Hitzrot as assistant to the vice-president in charge of international administration. He succeeds Robert C. Campbell who has retired after 41 years of service. J. W. Michener has been

(Continued on page 178)

New Automatic Precipitator Control by

WESTERN PRECIPITATION

offers many vital advantages...

1 LONG LIFE

This new control has indefinite life expectancy under all types of operating conditions. There are no tubes to replace, no high speed relays, counters, or timers to maintain. All circuitry consists of rugged "static" devices that have unusually long life!

2 RELIABILITY

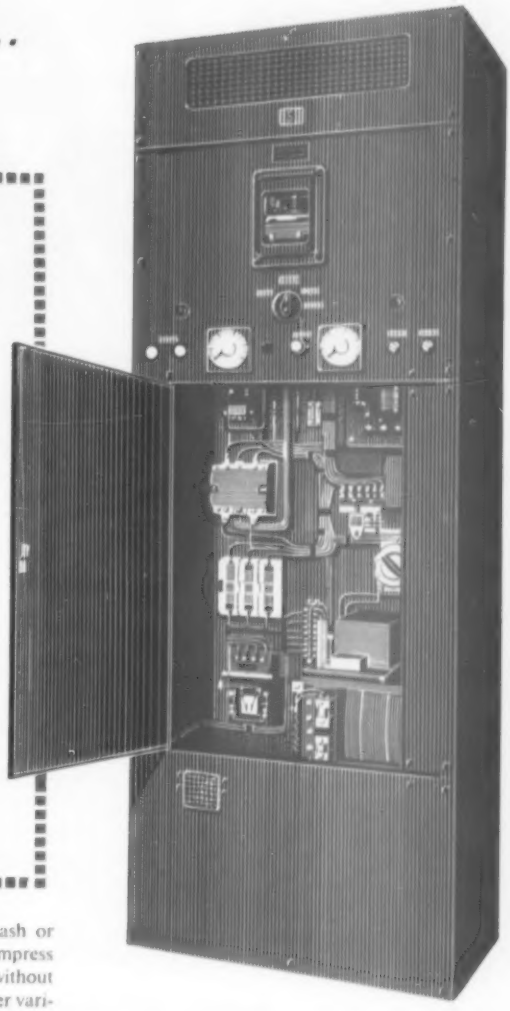
Optimum Precipitator power input is maintained regardless of operating conditions. The sensing control is simple, positive, accurate—and automatically evaluates the spark "Power Value" (intensity and frequency)—not just frequency or intensity alone.

3 STABILITY

Under short circuit, open circuit or other varying conditions, this control is completely stable and inherently trouble-free!

4 MODEST COST

Modest initial cost coupled with negligible maintenance assure optimum operating efficiency (therefore lower operating costs) throughout many years of continuous service.



WHEN using a Cottrell Precipitator for collecting dust, fume, fly ash or other suspensions from industrial gases, it is essential at all times to impress on the high voltage system the highest possible voltage and current without "flashover". Depending upon gas conditions, dust loading and other variable factors, the optimum voltage and current requirements vary widely from one minute to the next. Therefore, the vital importance of a simple, trouble-free and highly sensitive Precipitator Control is self-evident.

This new Western Precipitation Automatic Precipitator Control—*a product of the organization that has consistently led in the application of Cottrell Precipitators for industrial gas cleaning*—combines vital advantages found in no other competitive equipment. Our nearest representative will be glad to supply complete details. Or write direct!

Why not modernize your present out-dated Precipitator installation? The Western Precipitation Automatic Precipitator Control can be installed on any Cottrell unit. For further information contact our nearest office!

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Designers and Manufacturers of Equipment for Collection of Suspended Material from Gases ..and Equipment for the Process Industries

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COTTRELL Electrical Precipitators
MULTICLONE Mechanical Collectors
CMP Combination Units
DUALAIRE Reverse-Jet Filters
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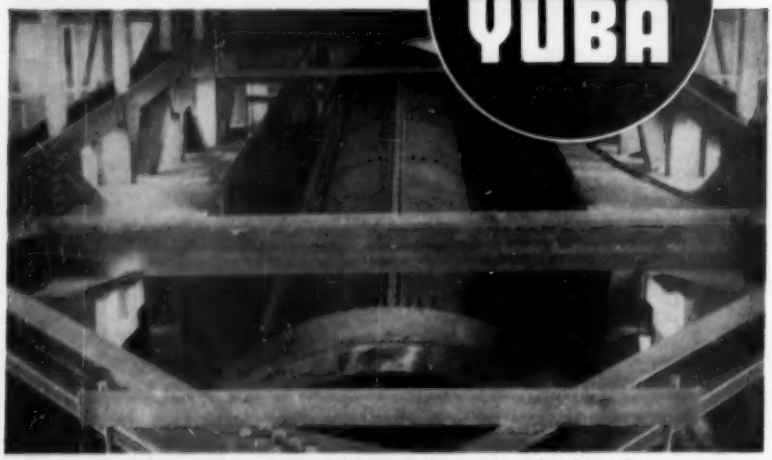
when you need

SCREENS or CONVEYORS

for dredge, plant, or mine...

CONSULT YUBA



YUBA-built revolving screen, 50' long, 9' diameter, weight about 65 tons.

You get long wear, reduce shutdowns for replacement when separating, scrubbing or sizing with YUBA Screens. They're made from Abrasion Resisting Steel plate, a high carbon, high manganese alloy steel with Brinnell hardness of 200 to 250. Taper drilled holes prevent clogging, can be small and closely spaced for screening monazite sands and other rare earths. For flat or revolving screens, in all thicknesses from 3/16" up; other dimensions as needed. Screens with cast manganese steel plates also can be furnished.

Conveying rock, sand and gravel has been part of YUBA's business ever since 1909. We've built hundreds of heavy-duty conveyors for use on dredges, in pits and at plants.

Bring your screen and conveyor problems to us for recommendations and estimates. No obligation. Wire, write or call TODAY.

YUBA-built conveyor stacker for conveying rock tailings from revolving screen on YUBA placer dredge to rock piles astern. 44" belt, 225' long.

YUBA DREDGES — PROVED DEPENDABILITY 'ROUND THE WORLD

YUBA MANUFACTURING CO. 106

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AGENTS { DIME, DARBY & CO., LTD. • SINGAPORE, KUALA LUMPUR, PENANG.
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CABLES: YUBAMAN, San Francisco • SHAWDARBCO, London

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named special assistant for engineering sales, succeeding Mr. Hitzrot. Dwight Richards has been appointed assistant director of the filtration technical division, Oakland, Calif. He was formerly manager of filtration engineering and will be succeeded by Graham Lee, engineering supervisor of specifications and standards. Walter J. Riker, who has been with the eastern industrial sales division, has been named manager of filtration product development upon the sudden death of Philip J. McGuire. Harry B. Dempsey has been promoted to supervisor of estimating for the filtration technical division upon the retirement of Harry E. Krayenbuhl.

Koehring Co., Milwaukee, Wis., has named the following district representatives: H. R. Powers in Washington, Oregon, Idaho and Montana; C. M. Andresen in Texas, New Mexico, Louisiana, Oklahoma and Mexico; L. J. Meyers in Illinois, Indiana, Kentucky, Tennessee, Missouri and Mississippi; and Stewart E. Danby in North and South Dakota, Nebraska, Iowa, Colorado, southern Wyoming, Minnesota, Kansas and western Missouri. Donald C. Kilpatrick, formerly a district representative, has been named parts sales promotion manager.

Union Bag-Camp Paper Corp., New York, N. Y., has announced that as a result of the recent merger of the two companies a new trade mark has been adopted for its combined line of products. It is a simplified version of the Union shield with the first names of both companies appearing inside the shield.

Ohio Hoist & Mfg. Co., Inc., Lisbon, Ohio, announces the appointment of Al Simmons as executive vice-president. He was formerly head of Simmons Industry, San Francisco, Calif., where he developed and perfected the "cable car hoist," a new improved type of swing stage traction hoist.

LeTourneau-Westinghouse Co., Peoria, Ill., has announced a $9,000,000 building and tooling program at Peoria, Ill., which is expected to be completed in April, 1957; also expansion of plant operations at Toccoa, Ga., and Indianapolis, Ind.

Western Machinery Co., San Francisco, Calif., announces that F. R. Elsner has been appointed district sales engineer in northern California, western Nevada, western Washington and Oregon, western Canada and Alaska, with headquarters in San Francisco.

Holz Rubber Co., Inc., Oakland, Calif., announces that Newton R. Crum has been appointed vice-president and sales manager of the industrial rubber products manufacturing plant in Lodi, Calif.

Lith-I-Bar Co., Holland, Mich., has appointed Hugh Aughinbaugh as chief engineer. He has had 25 years experience in product development and styling, testing, process engineering, tool engineering and designing.

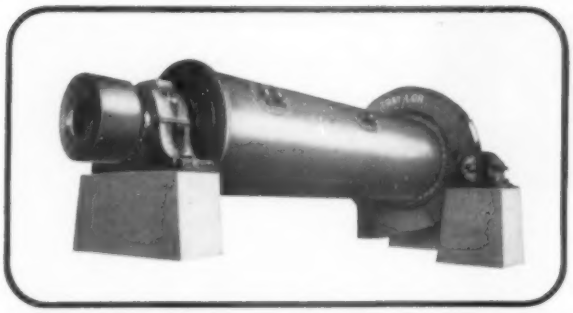
The Bristol Co., Waterbury, Conn., has appointed S. E. Gewin as district manager of the Chicago office. He was formerly manager of the St. Louis office and will be succeeded by Walter Messner, regional field engineer in Tulsa, Okla.

Electric Steel Foundry Co., Portland, Ore., has appointed Joe E. McQuaid as manager of the general sales department. For the past five years he has been assistant manager of the construction equipment division.

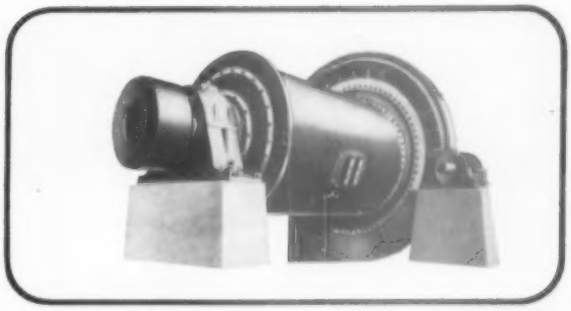
Worthington Corp., New York, N. Y., announces the election of Walther H. Feldmann, executive vice-president, as a member of the board of directors.

Stoody Co., Whittier, Calif., has appointed L. P. Fitzsimmons as field representative in Virginia, North and South Carolina, Georgia, Alabama and Florida. Andrew H. Gregg has been named to represent the company in west-

(Continued on page 180)

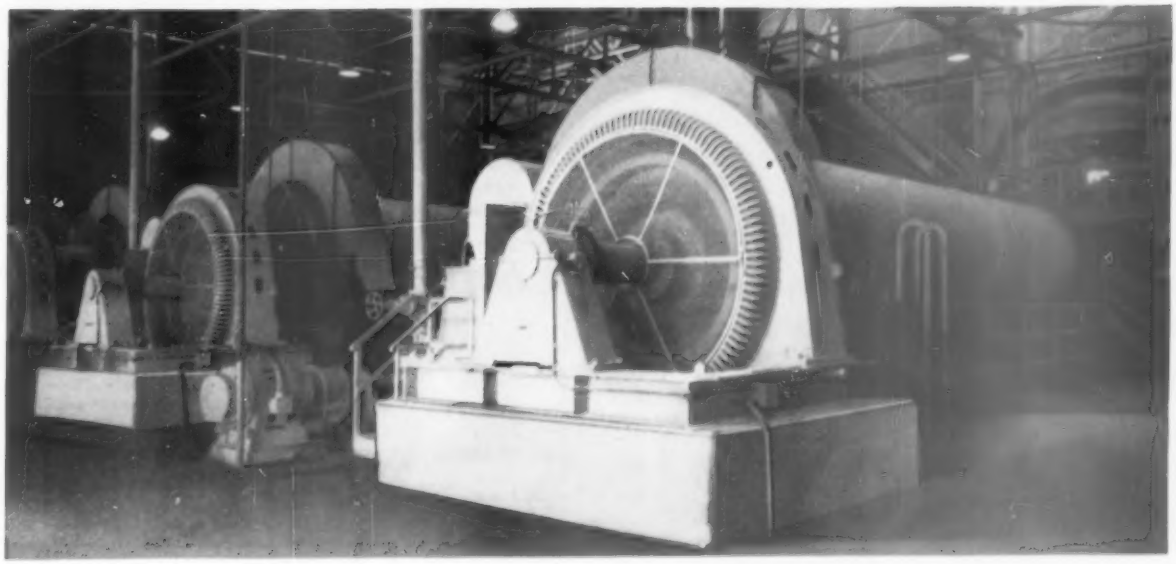


During the starting period, all main bearings on Traylor Grinding Mills are pressure-lubricated. A high pressure pump coats each trunnion with a film of grease which lifts and floats the mill to overcome high starting torques and eliminates undue wear caused by "dry" starting.



Precision-cut steel gears—trunnions cast integral with the detachable heads—shell liners of manganese or alloy steel . . . all indicate the superior design and construction features that are standard with Traylor.

Here's How TRAYLOR Turns Any Grinding Operation to Your Advantage



Traylor Grinding Mills are custom-engineered to exacting specifications developed from two important sources . . . data furnished by you, the customer, and the knowledge of Traylor Engineers gained from more than a half-century of specialized experience.

The application of Traylor experience to your specific requirement makes a "Traylor-Made" Grinding Mill the most logical, advantageous choice for you. Traylor Bulletin #10-121 gives complete specifications and describes the outstanding features of Traylor Grinding Mills. Write for your free copy today.

Traylor

GRINDING MILLS

OIL LUBRICATED BEARINGS

TRAYLOR ENGINEERING & MANUFACTURING COMPANY

843 MILL ST., ALLENTOWN, PA.

SALES OFFICES: New York • Chicago • San Francisco

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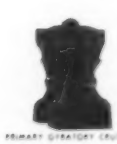

PRIMARY GYRATORY CRUSHERS

ROTARY KILNS

SECONDARY GYRATORY CRUSHERS

BALL MILLS

JAW CRUSHERS

APRON FEEDERS

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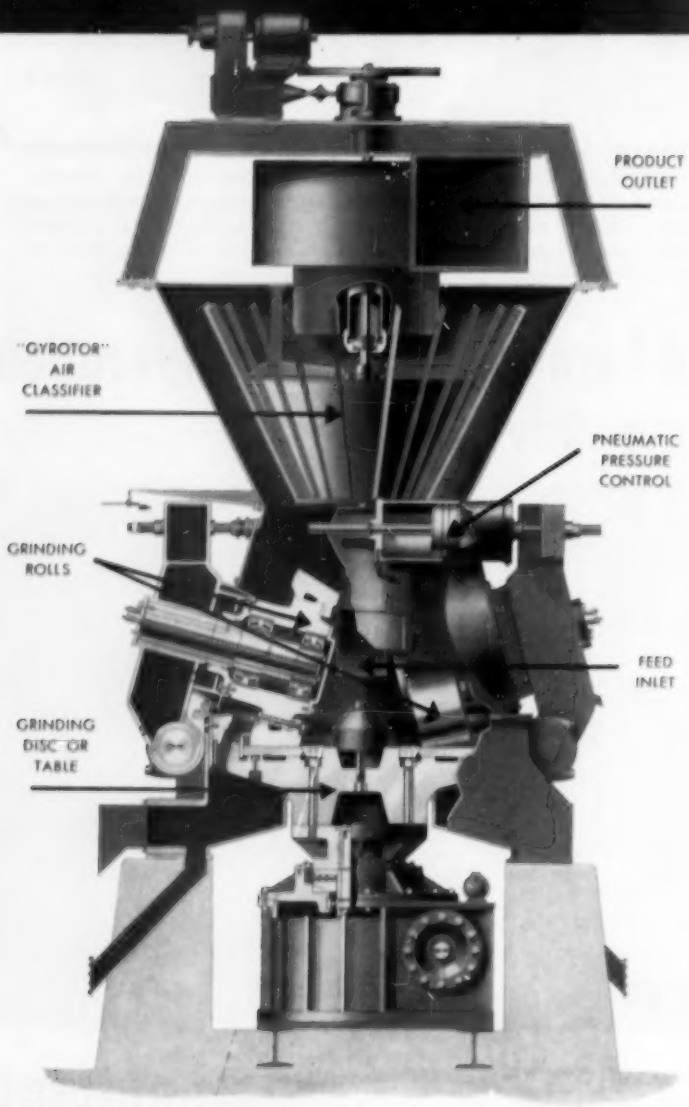
DISC-ROLL MILL



The Hardinge Disc-Roll Mill is a roller-type mill with two adjustable, pneumatically loaded rolls for grinding material on a horizontal rotating disc or table (Loesche type). The Hardinge "Gyrotor" Air Classifier, in combination with the mill, provides a complete grinding, classifying, and drying system. A full description is given in Bulletin 52-57.

HARDINGE
COMPANY, INCORPORATED

YORK, PENNSYLVANIA · 240 Arch St. · Main Office and Works

New York · Toronto · Chicago · Hibbing · Houston · Salt Lake City · San Francisco

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ern Canada, and Harry Cerf has been appointed field representative in Mexico, west Texas and southern New Mexico.

Thor Power Tool Co., Aurora, Ill., announces that Richard E. James, Jr., Birmingham, Ala., branch service engineer, has been named manager of the new Indianapolis branch. John P. Bank, works manager at Aurora since 1948, has been appointed sales engineer in the sales engineering division which is under the direction of G. H. DuSell.

General Electric Co., Schnectady, N. Y., announces that John W. Mason, senior advertising specialist for the metallurgical products department, Detroit, Mich., has been appointed manager of advertising and sales promotion. He succeeds C. E. St. Thomas who was transferred to the marketing services division in New York.

Clipper Mfg. Co., Kansas City, Mo., has announced the appointment of Roy Haile as field representative for southwest Texas, with headquarters in Austin, and William E. Dunn as field repesentative for the District of Columbia, portions of Delaware and West Viginia, as well as Virginia and Maryland, with headquarters in Washington, D. C.

Thew Shovel Co., Lorain, Ohio, announces that Waid V. Clark has been appointed treasurer in addition to his duties as secretary-controller, and that Wilson H. Madden, formerly vice-president of the Quick-Way Shovel Co., has been named merchandising methods manager.

American Brake Shoe Co., New York, N.Y., announces that the Denison Engineering Co., Columbus, Ohio a wholly-owned subsidiary since 1955, has become a division of the company. W. C. Denison remains as president, F. C. Norris as vice-president and general manager, and E. L. Fouse becomes a vice-president.

Atlas Powder Co., Wilmington, Del., announces the appointment of Dr. Fred W. Cox, Jr., as manager of the Reynolds experimental laboratory, Tamaqua, Penn., to succeed Guy F. Rolland, who has been named assistant to Dr. William J. Taylor, Jr., director of the explosives research department.

Basic, Inc., Cleveland, Ohio, has announced the appointment of John P. Holt as executive assistant to Harvey N. Barrett, Jr., vice-president of sales. Charles J. Tyson, Jr., fomerly with Bethlehem Steel Corp., has joined the sales and service staff.

Caterpillar Tractor Co., Peoria, Ill., has acquired Englehart Mfg. Co., Davenport, Iowa, which will be operated as a wholly-owned subsidiary of the company. The firm has been a major supplier of parts for Caterpillar for the past 13 years.

R. G. LeTourneau, Inc., Longview, Texas, has appointed Albert E. Mansfield, Jr., as midwestern representative for the industrial equipment division. He was formerly branch manager for Continental Motors Corp., Greggton, Texas.

St. Regis Paper Co., New York, N. Y., has opened a new sales office in Amarillo, Texas, for the multiwall packaging division, with Reid H. Williams as manager. The Dallas office has been moved to 6923 Snider Plaza.

General Scientific Equipment Co., Philadelphia, Penn., has moved its manufacturing and warehousing facilities to new and larger quarters at 7516 Limekiln Pike.

Richardson Scale Co., Clifton, N. J., announces that Arthur J. Burke, chief engineer, and William Hamilton, midwest regional manager, have been named vice-presidents.

Orr & Sembower, Inc., Reading, Penn., has appointed Vincent N. DeCerchio as assistant to the president. He was formerly a salesman in the New York City area.

designers and builders of equipment for basic industries

Car Dumpers

BUILT to last, McNally Pittsburg car dumpers have plenty of power; automatic, fast dumping cycle, to eliminate the pause that eats up working time.

For Basic Industries McNally Pittsburg offers:

— SERVICES —
Research & Development
Engineering Design — Field Erection

— EQUIPMENT —

Bucket Elevators	Conveyors
Car Hauls, Dumpers	Pug Mills
Pumps, Valves, Piping	Crushers
Dryers, centrifugal & heat	Screens
Washers, heavy media & jig	Kilns

McNALLY PITTSBURG MANUFACTURING CORPORATION

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— PLANTS —
Pittsburg, Kansas — Wellston, Ohio

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STANDARD

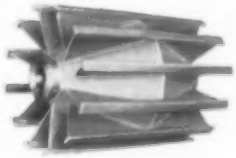
ELEVATING AND CONVEYING EQUIPMENT

•Greater Strength•
•Longer Life•
•Lower Cost•

CONTINUOUS ELEVATOR BUCKET STYLE No. 2

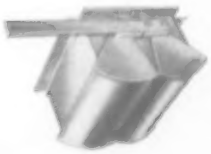
Put this Standard Bucket to work handling the toughest materials, and it takes the job right in stride—resisting abrasion, corrosion and wear. This bucket is typical of the complete line of low cost, rugged Standard Steel Buckets — available in Salem, Style "A," shelf type and other continuous style buckets.

STANDARD WING TYPE SELF-CLEANING PULLEY



The most severe operating conditions won't bother this Standard Pulley because its all-steel welded construction gives it far greater strength and resistance to breaking. And yet it weighs less . . . costs less.

STANDARD BIN GATE



Profit from faster, easier material handling made possible by this gear-operated all-steel Standard Bin Gate. Other styles in Standard Bin Gates also available.

For lower maintenance and material handling costs, convert to Standard. Write today for catalog showing the complete Standard line.

The Standard Metal Mfg. Co. SINCE 1921

STANDARD METAL MFG. CO.
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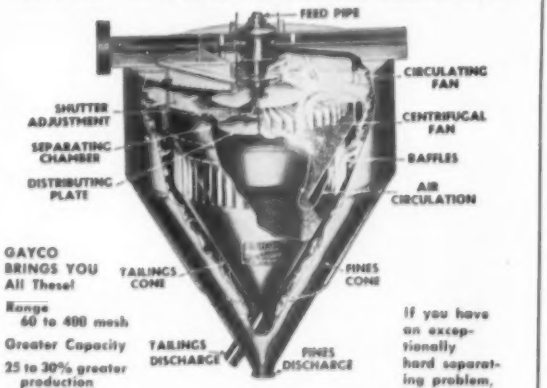
GAYCO CENTRIFUGAL SEPARATORS



GAYCO BRINGS YOU All These!

- Range 60 to 400 mesh
- Greater Capacity 25 to 30% greater production
- Cleaner Tailings
- Uniform Products
- Slow speed for slow wear
- Quick and easy adjustments

"TIMKEN BEARING EQUIPPED"

If you have an exceptionally hard separating problem, TRY THE GAYCO.

Closer separations are possible with the Exclusive Gayco Centrifugal sizing fan. Higher production results from a more complete removal of the fines made by the mill. The efficient Gayco sizing eliminates all undesirable oversize from the product.

UNIVERSAL ROAD MACHINERY CO.
Rubert M. Gay-Division
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117 LIBERTY STREET — NEW YORK 6, N. Y.
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RAYMOND SERVICE goes with RAYMOND EQUIPMENT

If you are building a new cement plant or modernizing the old one, Raymond experience can help you in developing maximum production efficiency.

Raymond engineers will work with you in selecting the proper type and size of a Whizzer Air Separator to meet your capacity requirements, and to insure long term economy in cement classification.

Whizzer Separation

The Raymond Mechanical Air Separator with the patented revolving Whizzer provides an important link in the cement production line. With its easy fineness control and close separation of fractions, it does a precision job in the classification of raw mix or cement clinker.

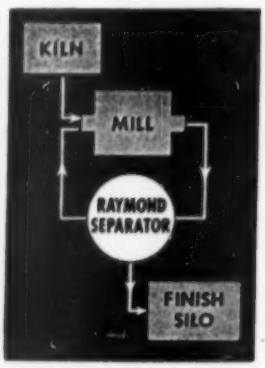
With the proper setting of the separator, the external adjustment of the slide dampers controls the fineness of specific surface area. Standard Portland grades up to high early strength cement can be produced without internal changes.

The resulting increased output, ranging from 25% up, and the improved plant efficiency due to closed circuit operation, make the Raymond Separator a "natural" for raising cement production and reducing the per-barrel cost of any grade you produce.

SINCE 1887

For further details, see new Raymond Bulletin #76.

RAYMOND MECHANICAL AIR SEPARATOR



In closed circuit grinding operations Raymond Separators maintain uniformity of product, boost overall mill output, and add to the efficiency of the complete unit of equipment.

COMBUSTION ENGINEERING, INC.

Raymond Division

1307 NORTH BRANCH ST.
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SALES OFFICES IN PRINCIPAL CITIES

Combustion Engineering-Superheater Ltd., Montreal, Canada

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CONCRETE PRODUCTS

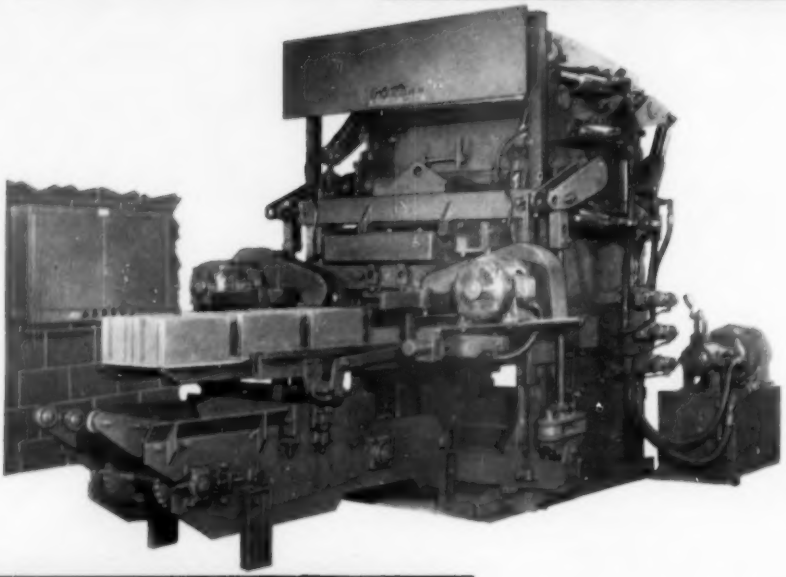
A SECTION OF ROCK PRODUCTS

CONCRETE UNITS · READY-MIXED CONCRETE

Airplane hangar of prestressed concrete units made by West Coast Shell Corp., Sarasota, Fla.

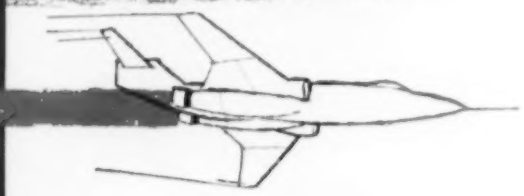
HIGH PRODUCTION 2x and 2½x LOW COST

NEW!



NEW!

WITH THE GOCORP *jet*



Here's a low cost, *durable*, plain pallet block machine that will give you jet age production of blocks you can brag about. The JET builds profits for you that won't be eaten up by maintenance and the burden of frequent replacement.

JET FEATURES THAT MEAN PRODUCTION AND PROFIT!!!

- **JET PRODUCTION**—Conservatively rated at 600 good blocks per hour.
- **JET QUALITY BLOCKS**—Quick change feed and strip time controls to handle troublesome mixes • Automatic, low voltage height control • A block receiver that babies your most fragile blocks—no jolts or jerks.
- **JET HYDRAULIC DRIVE**—For swift, smooth, effortless motions.
- **BUILT TO LAST**—Rugged frame has full 1" side plates—thoroughly braced with plate and structural members • Motors, pumps, shafts, single acting cylinders are all oversized for real staying power • Plug stop reversing vibrator motors—no brake failures.
- **ACCESSIBLE**—Working parts are where you can get at them • No pit required • Easy to adjust • Easy to clean • Easy to maintain • Change full height molds in about 20 minutes—to other heights in about 30.
- **TWO VERSATILE SIZES**—Either 2X or 2½X.

For higher production at a lower unit cost, write today for your brochure on the GOCORP JET.

OTHER GOCORP EQUIPMENT—The "Trustee" (3X husky brother of the "Jet"), "King" (6X) and "Senior" (3X) Plain Pallet Machines • "Junior" Cored Pallet Block Machines (Single or Twin Models) • Mixers and Skips (up to 75 cu. ft.) • Allied equipment.

GOCORP
ADRIAN-MICH.
407 Grace Street Adrian, Michigan

INDUSTRY NEWS

Cover Picture

ON THIS MONTH'S CONCRETE PRODUCTS COVER may be seen an airplane hangar which was built for the Sarasota County Mosquito Control Commission at Sarasota, Fla. It is constructed of Leap prestressed concrete double Tees supported by cantilever prestressed concrete girders. The hangar is 40 ft. wide and 320 ft. long, designed to accommodate four airplanes. Prestressed concrete double Tees were manufactured by West Coast Shell Corp., a Leap franchised casting yard in Sarasota. The architect was Jack West of Sarasota, and the contractor was T. T. Watson, Inc.

N.C.M.A. Purchases Site for Laboratory, Office Building

NATIONAL CONCRETE MASONRY ASSOCIATION has purchased a 5-acre site in West Chicago, Ill., for a proposed laboratory and office building. Plans call for 6000-sq. ft. of laboratory space and 4000-sq. ft. of office space. The one-story structure is being designed by John D. Jarvis, A.I.A., Chicago, Ill. Purchase of the land and necessary rezoning have been completed, according to R. E. Copeland, N.C.M.A. director of engineering.

Sketches and cost figures were recently reviewed by the Board of Directors and are being revised to conform with decisions reached at that time.

Block Firms Merge

CONCRETE STONE & BLOCK CO., Dearborn, Mich., and the block and building supply division of Concrete Block & Products Co., Detroit, have merged. The new company, Real Block & Supply Co., will manufacture and distribute lightweight slag block and masonry and building supplies. Production capacity is 1800 block per hour.

Officers of Real Block & Supply Co. are Martin K. Stein, president, and Harry H. Young, secretary.

Opens Tecfab Plant

TECFAB, INC., Beltsville, Md., recently opened a plant for the manufacture of Tecfab lightweight masonry panel. As described by its developer, Henry A. Berliner, the panel consists of a corrugated steel core embedded in precast perlite concrete, and can be used for complete wall, interior partition, floor and roof systems. The exterior face of the panel usually features exposed aggregate, a variety of color and textures being possible. Where preferred, the surface can be finished alternately with corrosion-proof metal or other material better suited to the panel's function. Stressed by its makers are decorative advantages, as well as adaptability to flexible design patterns and low maintenance characteristics.

Tecfab, Inc., is an applied research organization formed in 1954 with Mr. Berliner as president. After originating the idea for the paneling in 1945, Mr. Berliner was joined in its development by Charles M. Goodman, A.I.A., as architectural consultant.

Concrete Mixers Exempt from Manufacturer's Excise Tax

INTERNAL REVENUE SERVICE has issued Revenue Ruling 56-479, which provides that a concrete mixer, consisting "of a large mixing tank set on gears and rotated by a motor," is not subject to the manufacturer's excise tax, even though mounted on an automobile truck chassis. This ruling is a clarification of Section 4061 of the Internal Revenue Code of 1954, which imposes an excise tax of 5 percent on trucks, bus trailers, semi-trailers, and tractors. The truck chassis on which the mixer is mounted will, however, continue to be subject to the tax when sold by the manufacturer.

Broaden Concrete Operations

DEEKS-MCBRIDE LTD., Vancouver, B. C., has started manufacture of concrete pipe in an $80,000 plant at the site of its batching operations. One thousand feet (maximum) of sewer or culvert pipe can be produced daily. Current production covers pipe ranging from 6- to 36-in. dia. Equipment to be installed will turn out 1-ft. lengths of 4-, 6-, and 8-in. drain tile.

Pressure Pipe Plant

PRICE BROTHERS CO., Dayton, Ohio, has completed a new $1 million concrete pressure pipe plant in Hattiesburg, Miss. The plant is located on a 20-acre site adjacent to the B. & H.S. railroad. Pipe will be produced in sizes 16- to 54-in. dia., and larger. Other Price Brothers plants are in Dayton, Cleveland and Columbus, Ohio, Detroit, Mich., and Miami, Fla.

VALLEY REDI-MIX CO., Phoenix, Ariz., has been established by F. W. Schammel and M. D. Crandall. The partners have taken over the Monarch Material Co. plant. Both Mr. Schammel and Mr. Crandall, as well as the plant superintendent, Wayne Kempainen, were formerly with Arizona Sand and Rock Co.

BUTLER LIME AND CEMENT CO., Milwaukee, Wis., an affiliate of Tews Lime and Cement Co., opened recently. The 150-cu. yd. per hr. ready-mix plant was organized by Walter F. Tews, president. Leonard W. Tews, Lester A. Prange, Ernest W. Willert and Howard W. Tews are officers.

E. DEVECCHIS AND SONS CONCRETE PRODUCTS, INC., Mount Union, Penn., has opened a third plant at McKee, Penn. Phillip DeVecchis is manager of the McKee plant, which is equipped to turn out concrete products ranging from 2-in. slab to 12-in. block.

DURA-BLOX, INC., Olympia, Wash., has been incorporated, with capitalization of $75,000. Filing for the articles were Miles Davies, Vancouver, Russell E. Nelson, Beaverton, Ore., and Harold Lashmutt, Portland.

EVANS, COLEMAN AND EVANS, LTD., Vancouver, B. C., has bought the concrete pipe plant, prestressed and pre-cast concrete plants of B. C. Concrete Co. Ltd.

CONCRETE CONTROLS, INC., New Orleans, La., has been granted a charter to produce construction materials. Three-hundred shares, no par value, were listed.

MCMICHAEL PRE-CAST CONCRETE CO., Tulsa, Okla., has been granted a charter. Incorporators are Bradford J. Williams, Fenelon Boesche and Franklin D. Hettinger, all of Tulsa.

MCCANN CONCRETE CO., Omaha, Neb., has been incorporated by John E. and George W. McCann. Authorized capital stock is $150,000.

KANNAPOLIS CONCRETE CO., Kannapolis, N. C., opened a ready-mixed plant recently. Bachman Doar is owner and operator.

KENTUCKY CONCRETE PIPE CO., Frankfort, Ky., has opened a fourth plant at London, Ky. T. J. Hopgood is superintendent.

READY MIXED CONCRETE CO., Smithfield, N.C., is a new firm established by A. S. Cretini. Six transit mixers are used by the firm.

● Use of prestressed concrete in bridge construction was extended in several directions in building this attractive bridge in downtown Houston.

The structure is a flat-slab, continuous over three sets of columns. The deck follows both horizontal and vertical curves. Column rows are skewed at different angles with respect to bridge's centerline, which is curved to a radius of 764 ft.

Despite problems created by continuity, curvature and skewed supports, the deck was prestressed with steel tendons continuous over the full 225-ft. length. This steel also undulates in a vertical plane to apply upward and downward forces that counteract bending stresses due to loads on the deck.

The new bridge carries six lanes of traffic on Waugh Drive over an extension of Memorial Drive, which it intersects at a 45 deg. angle. The flat slab deck is 72 ft. wide. Stringent clearance requirements dictated the use of flat-slab design.

The public is pleased with the beauty and utility of this unique bridge. Designer and Contractor are equally pleased with the performance of Lone Star Cement, 12,500 bbls. of which was used in this attractive structure.

WAUGH DRIVE-MEMORIAL DRIVE INTERCHANGE, Houston, Texas

Engineer:
FRANCIS J. NIVEN & ASSOCIATES, Houston

General Contractor:
CONSTRUCTORS, INC., Houston

★

Subcontractor, Prestressing:
TEXAS STRESSED CONCRETE CORPORATION
Austin

Lone Star Cement supplied by:
W. D. HADEN COMPANY, Houston

LONE STAR CEMENTS COVER
THE ENTIRE CONSTRUCTION FIELD

LONE STAR CEMENT CORPORATION

Offices: ABILENE, TEX. • ALBANY, N.Y. • BETHLEHEM, PA.
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INDIANAPOLIS • KANSAS CITY, MO. • NEW ORLEANS • NEW YORK
NORFOLK • RICHMOND • WASHINGTON, D. C.

LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 18 MODERN MILLS, 38,000,000 BARRELS ANNUAL CAPACITY

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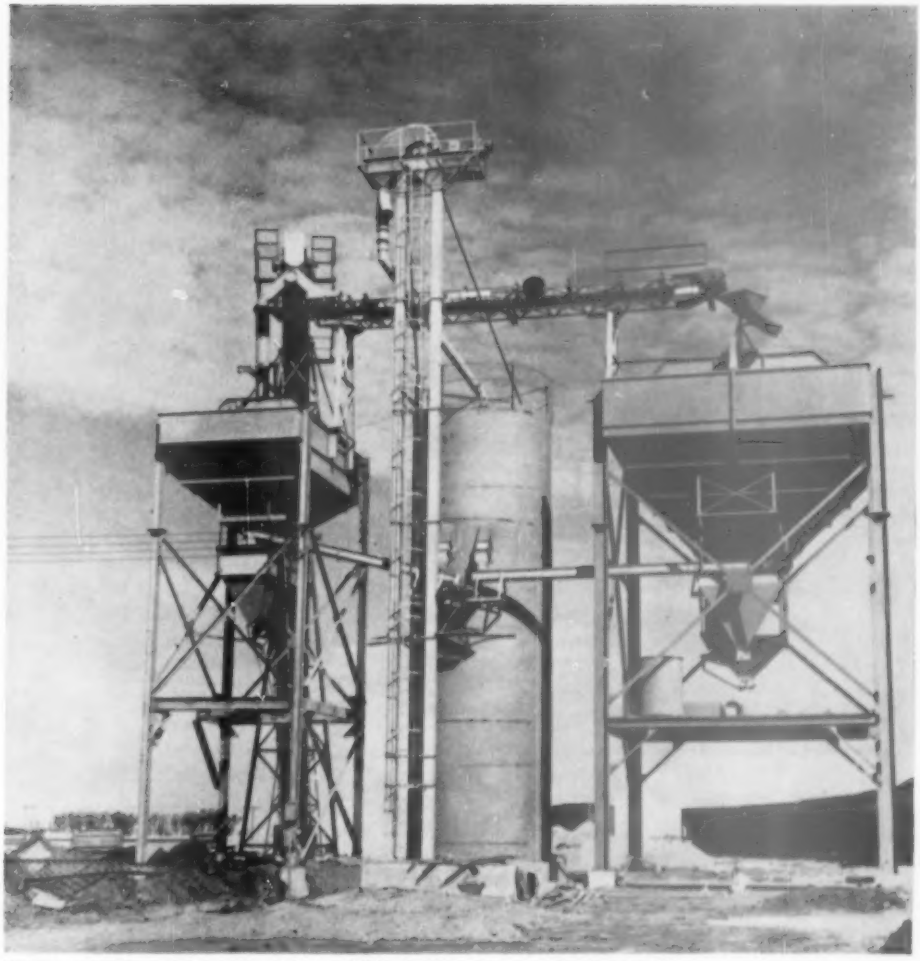


Before enclosing structure, the details of block plant, left, and ready-mixed concrete plant, right, and cross conveyor can be seen

Plant Planning Nets Savings To Dakota Concrete Firm

FORESIGHT AND CAREFUL PLANNING, not only in the design, but in the physical location of a new ready-mix and concrete block plant has saved the Red River Concrete Products Co. of Grand Forks, N. D. as much as 60¢ per ton in handling costs for their aggregates! Since their plant capacity may at times reach 10 cars of aggregates per day, it readily can be seen how such an economy will soon write off the cost of the handling machinery, leaving them in an enviable competitive picture.

One of the largest ready-mix and concrete block operators in the Dakota-Minnesota region, Red River's existing plant had been located in East Grand Forks, Minnesota, on the tracks of the Great Northern Railway. While seemingly an unimportant factor, this geographic location was the crux of their cost problem. Their source of aggregate was in Crookston, Minnesota, which was served only by the Northern Pacific Railway. Upon arrival at Grand Forks, it was necessary to transfer the cars of aggregate across town to the Great Northern for delivery to the East Grand Forks plant. It was in this transference that the excessive costs were involved.

Showing flow of aggregate from hopper cars to storage and into plant by belt conveyor

When, in the fall of 1955, modernization and expansion of the present plant became urgent, the Red River organization, headed by H. A. Krum, owner, gave serious thought to not only the redesign, but to the re-location of the operations as well.

The design problem was given to W. S. Nott Company, of Minneapolis, an old line organization of specialists in conveying and materials handling equipment. The Nott organization not only handled the design of the new plant, but was instrumental in obtaining a new 8-acre plot of ground on the western edge of Grand Forks, adjacent to the right-of-way of the Northern Pacific. In this regard, the railroad provided valuable assistance—a service that is increasingly common with rail carriers, anxious to place freight-using industrials in spots where they can be served by the railroad's facilities.

The result of Nott's planning is a dual plant, producing both ready-mixed concrete and concrete block. The old Red River plant is being retained and will be used for producing special architectural concrete products.

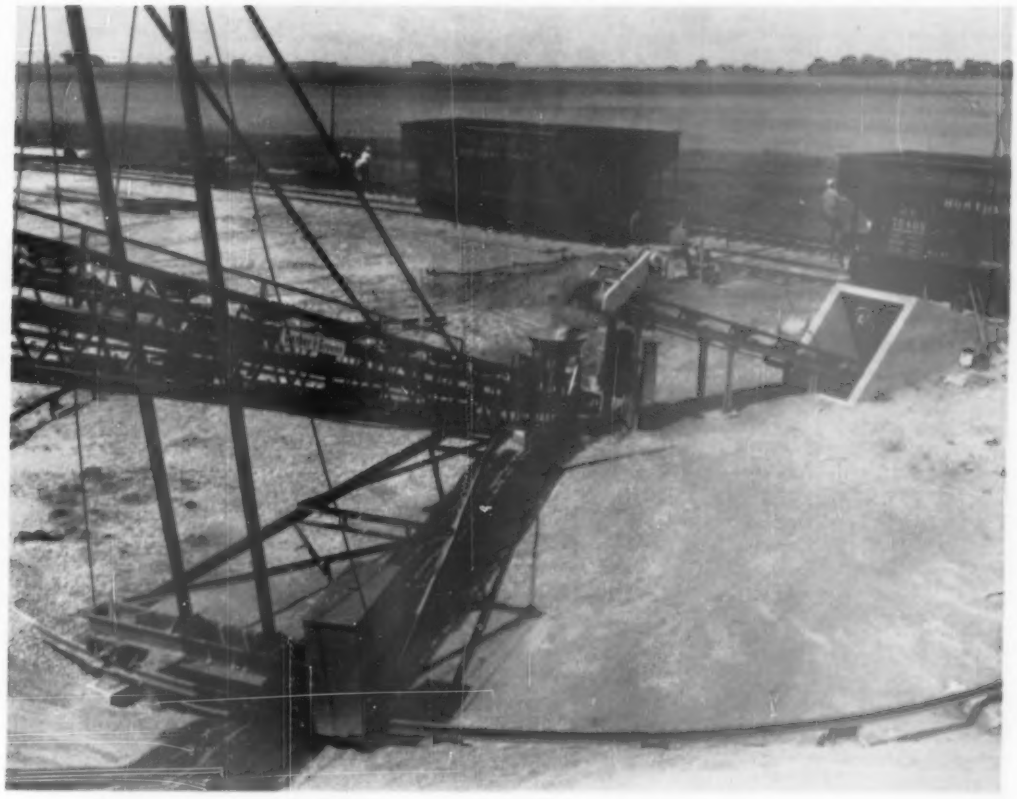
A sustained production rate of 100 cu. yd. of ready-mixed concrete per hour is possible at the new plant, even though demands of the area are not expected to be that high. However, the block plant has an annual capacity of 2,000,000 standard concrete block.

Despite this high capacity, manpower requirements of the plant are unusually low. Personnel assigned include one man handling the unloading of aggregates and cement, one man to operate the entire ready-mixed plant, one man to operate the concrete block mixer, one man on the block machine, one fork-lift truck man, and two yard helpers. Operating employees total seven men.

Layout of the plant begins with a complete Barber-Greene belt-conveyor handling system for aggregates. Two sizes of sand plus 1½-in., ¾-in. and "buckwheat" rock are received in conventional hopper-bottom cars at the rate of six to eight cars per day. Bulk cement, also received by rail, comes in at the rate of three or four cars weekly.

Aggregates flow directly from the hopper cars, through a track hopper onto an 18-in. x 48-ft. inclined conveyor in a concrete tunnel beneath the track. The tunnel is short, and most of the conveyor is above ground. It takes about 15 min. to empty a hopper car of reasonably dry aggregate and perhaps 20 minutes in the case of washed—and still fairly wet—sand.

The first conveyor discharges onto a 60-ft. long,



Above: Receiving load of sand from hopper car. Self-propelled radial stacker delivers it to the stockpile

Right: Aerial view taken during construction of the ready-mixed concrete plant

self-propelled radial stacker, which builds stockpiles of the five different aggregate materials. Piles are separated by simple plank bulkheads. Beneath the stockpiles, housed in a concrete tunnel, is a 70-ft. long tunnel conveyor that delivers the selected aggregates onto a 210-ft. inclined belt. The latter carries aggregates into the plant. Since the feeder gates are controlled by the mixer operators, the aggregate is "untouched by human hands" between the hopper cars and the plant.

The air-operated gates, which are of Nott's design, are an interesting feature of the tunnel reclaiming system. Each gate has retractable skirt boards that lift when the gate closes. Thus, preceding gate feeding does not hit fixed skirts, causing spillage and flick-off of material striking fixed skirtings.

Please turn to page 210

Barn with concrete masonry walls, paved lot and concrete stave silo

By JAMES S. BOYD

Concrete In Farm

Concrete grain storage structure with automatic filling and emptying device

Precast concrete panel wall for horizontal silo being tilted into place with farm tractor power

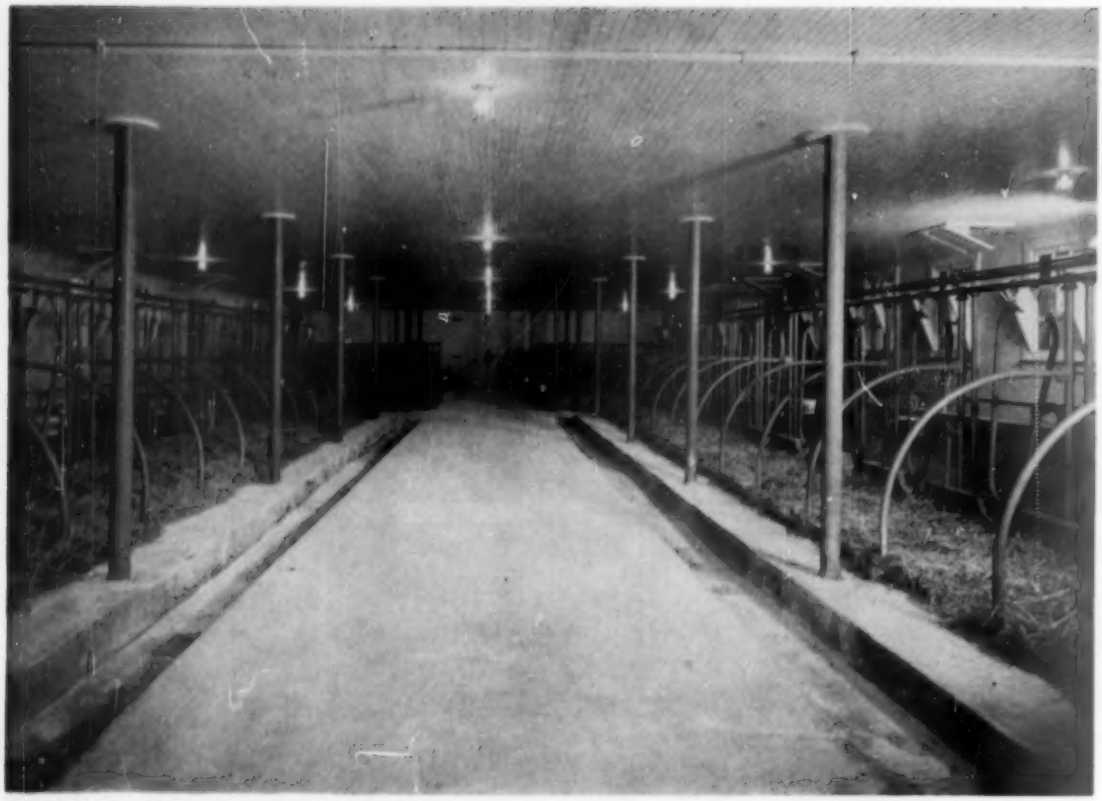
The Farmer has Learned that Concrete and Masonry Products are Attractive, Fireproof, Permanent and Sanitary

Has a Big Place Construction

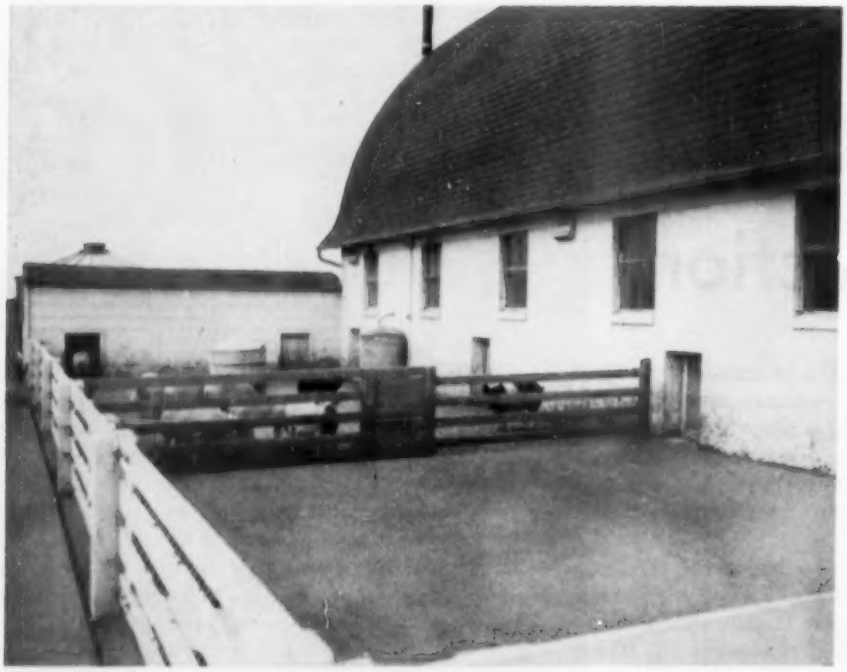
VERSATILE CONCRETE and masonry products—attractive, fireproof, sanitary, and easily cleaned—have recently earned a place in farm construction. The farmer has discovered that concrete, readily formed into almost any shape, is a time-saver in the construction and maintenance of farm buildings.

Concrete is helping to solve one of the farmer's big problems—how to make his time more productive. Today, farms are larger, and fewer workers are available for them. Consequently, the farm operator, with little time for construction, is putting up buildings in less time by using masonry and ready-mixed concrete.

Concrete construction lightens the maintenance of farm buildings and simplifies many chores. A concrete barn feed lot, for example, can be cleaned readily with a scraper or a manure loader mounted on the front of a tractor. The concrete floor makes a smooth flat surface so that in a short time the manure can be pushed to the edge of the slab and loaded into a wagon or manure spreader for transporting to the fields. The concrete floor keeps the animals out of the mud so that they look better and require less time to milk. Concrete in mangers and stanchions provides surfaces that can be swept quickly and, if necessary, washed off. Out in the feed lots, these mangers can be used with a



Interior of dairy barn with concrete floor and gutter



A concrete feeding floor for efficient hog production

Concrete on the Farm

. . . Continued

mechanical wagon and other unloading devices to feed quickly large numbers of beef cattle. Used in feed alleys, concrete facilitates the moving of feed in carts and gutters so that mechanical gutter cleaners can be used. This saves farmers many hours each year where herds of 20 to 100 cows are milked. It provides clean, sanitary conditions behind the cows. Without concrete, use of many of the farmer's labor-saving devices would be impossible. In fact, many of these devices depend entirely upon the concrete construction for their operation and installation.

Wherever concrete is used, it results in permanent, easily cleaned, easily sanitized farm construction. It might be used for a continuous foundation around a balloon type structure, or it can be used for piers or posts.

Conditions are such that decay can occur rapidly in practically all farm buildings. Usually the humidity is exceptionally high and temperatures are high, so that many materials will not be resistant to these conditions. Around the dairy farm, large amounts of water are used for cleaning, and surfaces are scrubbed so that the inside surface must be smooth and extremely resistant to water. Hog house construction must be such that between farrowing periods the floors and the walls can be disinfected easily to prevent the spread of disease. Once disease gets into a hog house, it is difficult to remove.

Masonry units have become popular for above ground work because many farmers do not have facilities to handle concrete. As long as the concrete is being poured where the ground can be used as a form, it is convenient for farmers to use. However, when the construction comes above ground so that form work is required, problems arise that many farmers cannot handle.

Probably concrete masonry is used most in the construction of milk rooms and milking rooms. In these buildings, large quantities of water are used because the walls are washed and scrubbed often. Concrete masonry is one of the few materials that will withstand this type of treatment. Poultry houses and hog houses also utilize concrete masonry because these buildings must be cleaned and disinfected between litters and broodings. In most cases, the lightweight masonry unit is preferred over the regular sand-gravel unit due to the increased insulating value. Masonry also is being used for below-ground sections.

In most farm buildings all heat has to come from the animals, birds, or grain stored in the building. Walls should be well insulated to conserve as much of this heat as possible so as to maintain comfortable conditions inside the building. For this reason, some type of insulation usually is shown on the plan to provide satisfactory conditions within the building when the outside temperature drops.

Since heat balance is not important in open animal shelters or machinery storage buildings, regular sand and gravel block can be used. Lightweight units that can be laid faster with less labor are usually available to farmers.

Tilt-up construction, recently used in farm buildings, is especially useful in machinery storages and horizontal silos. The walls of machinery storages need not be insulated. They are usually standard construction so that as soon as the poured concrete floor is dry, the walls, poured on top of the floor with a very inexpensive form, are raised into position. The farm tractor and other available equipment usually has sufficient power to raise a wall section so that no outside help is required. This system works well for horizontal silos since concrete is fairly resistant to the silage acids and to the abrasion or to the bumping of vehicles that might cut through the silo. In all cases, a concrete floor is recommended for the horizontal silo. After this is poured, the walls are poured in a horizontal position and tilted into position with ordinary farm equipment. Inexpensive horizontal silos can be erected with this method of construction. Wall panels can be poured at the plant and delivered to the site, ready for erection. This would decrease the amount of farmer time required to build a structure and relieve him of the erection work on the farm.

Today most upright silos are built of concrete staves. These staves, although not permanently resistant to acid in silage, do a reasonably good job and with a little maintenance will last for many years. Much work has been done to obtain coatings that may be put on the interior of concrete silos to make them more resistant to acid. At present, the best treatment for these walls is a rich coat of cement mortar, applied after the old crumbly material has been scraped from the wall.

Many farmers have been able to reconstruct buildings destroyed by fire which never could have been possible with the old method of mixing concrete. One of the farmers' big problems is to make their time most productive, and most farmers are not in a position to do much of their own concrete work. With the general availablity of concrete masonry units, and the development of ready-mixed concrete, farmers have been able to build buildings in less time.

Electric batching control panel, left; water flow meter, center; and scale, right

By GEO. SCHENCK

Electric Controls Speed Up Winkworth Batching Plant

SPEED AND ACCURACY in batching and mixing concrete are obtained in the new plant of Winkworth Fuel & Supply Company located on Detroit's near east side. Built to meet the ever increasing demand for high quality concrete in Detroit's downtown construction program, the new plant electrically hooks together finger tip controls and the weighing and metering devices through air-operated gates and valves. The latter, they say, is an approach to the solution of the "mid-air" aggregate problem.

Important in the company's record of progress is the close check on the production of its four plants. Spot checks are made on concrete being delivered from each of the plants with determinations of aggregate gradation, slump, field yield, and entrained air content. The test data obtained has frequently proven its value in assistance to customers.

The new east side yard has an aggregate storage area large enough to store 25,000 tons. Crushed limestone is received by lake vessel from the Inland Lime and Stone Co., Manistique, Mich.

Please turn to page 197

CHAIN BELT

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MOTO-MIXERS

Out in front of the Parade

It's more than a matter of pride. It's a deeply ingrained habit that makes Rex Adjusta-Wate Moto-Mixers the pace setter in truck mixer design. For Rex has the habit of leadership . . . the responsibility for the creative engineering that looks to tomorrow — today!

Today's truck mixers are a far cry from the machines of 10 or 20 years ago — far more efficient, more profitable to operate. And the responsibility for this progress has rested primarily on the shoulders of the leader — Rex! The design . . . the manufacture . . . the testing . . . the burden of introduction of the new and improved has been the price we pay for leadership.

Typical of the progress you expect from the leader is the Rex Front Engine Power Take-Off — Rex FEPTO — an innovation that ranks with the many Rex firsts — chain drum drive, three-point suspension, Adjusta-Wate design principle and others. This is a proven design for, as the leader, we can't afford to take a chance with your pocketbook. It's as far ahead in performance as any of the other Rex innovations that have meant

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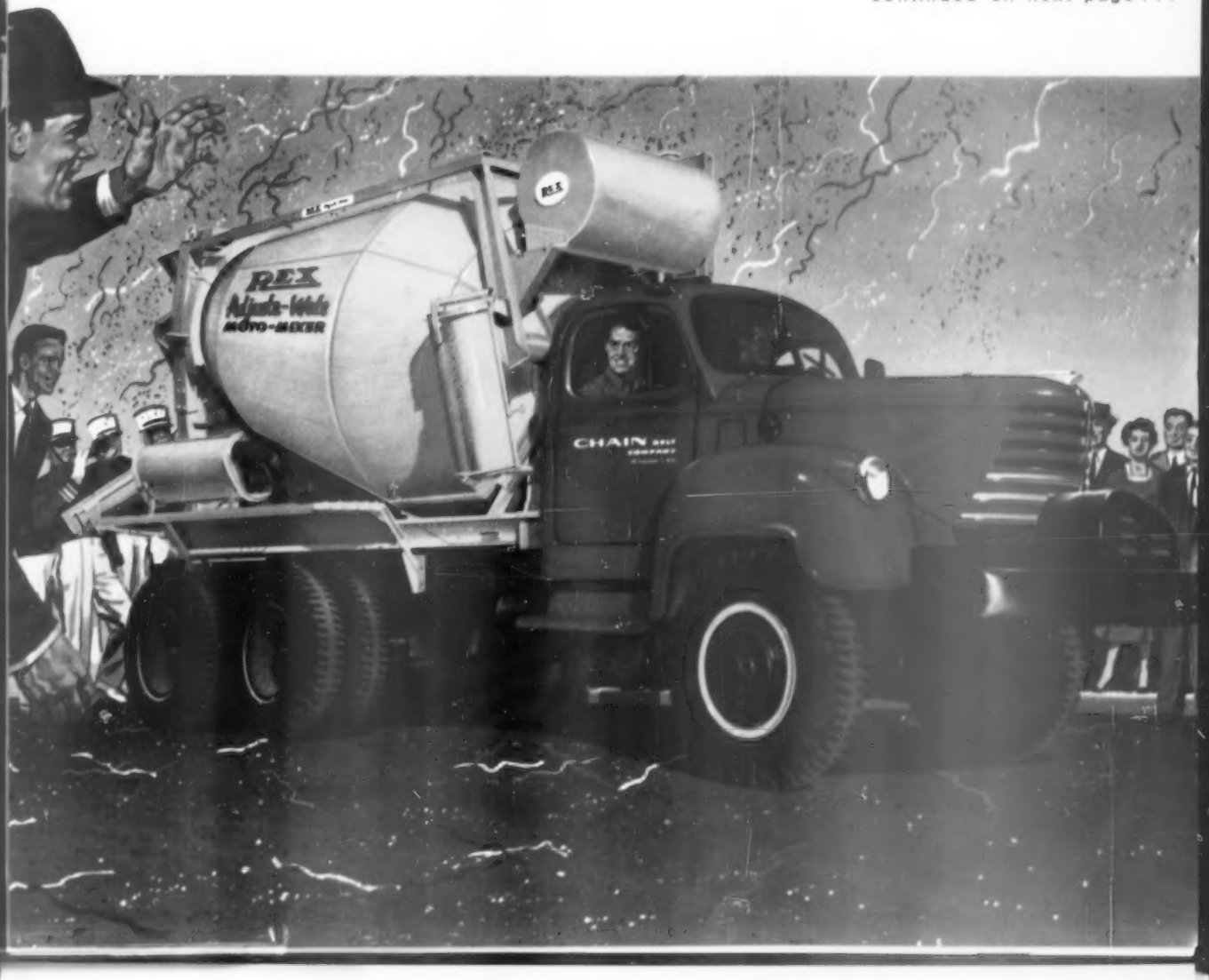

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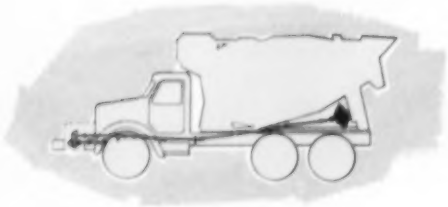
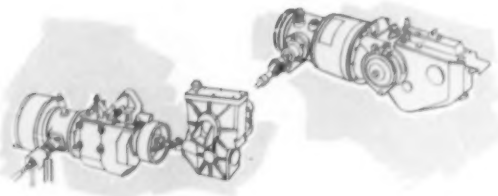
Rex FEPTO is another example of our ability to live up to our promise — "When you want to stay ahead of your competition . . . to give your customers the best in service and quality, look to Rex — for leadership."

And, of course, FEPTO is just one of the many values to be found in Rex Adjusta-Wate Moto-Mixers (R), the leaders in the truck mixer parade. For the rest of this story, see your Rex Distributor or write CHAIN Belt Company, Milwaukee 1, Wisconsin.

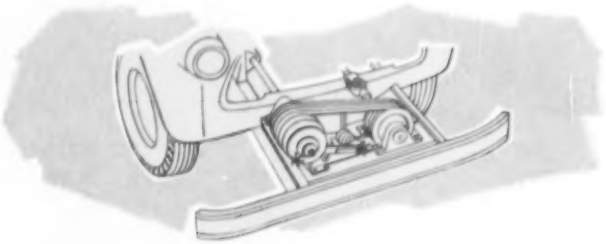
Rex FEPTO advantages are outstanding



Proper drive line location, inside the truck frame on the right, eliminating excessive angles and interference with steering column, brakes and transmission. Out of the way, safe for the operator, protected from damage and dirt.



Transmission option. Your choice of two transmissions. The heavy-duty Rex 202 two-speed transmission proved by 18 years of field service . . . or the new automotive type Rex 101 four-speed reversing transmission.



✻ **Electric disconnect clutch** permits disengagement of drum and drive lines through a switch in the cab. Ideal for emergencies, cold starting, curb or gutter pouring from cab, prevention of needless wear on return runs.

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Don't penalize your profits . . . Your local Rex Distributor can give you the facts on

ADJUSTA-WATE MOTO-MIXERS

LEADERSHIP . . . THROUGH CREATIVE ENGINEERING

CHAIN BELT COMPANY 4695 W. Greenfield Ave., Milwaukee 1, Wis.

Litho. in U.S.A.

Compact batching plant and storage bins for aggregates and cement

or the Cedarville quarry of Michigan Limestone Division, U. S. Steel Corp. The planned addition of overhead belt conveyors will increase present storage capacity for coarse aggregate.

Stone is handled from the storage area to the daily working piles and to the inclined belt conveyor by crawler crane equipped with clamshell bucket. Bulk handling of large cargoes by self-unloading lake carriers results in some segregation in the storage piles. The proper use of the clamshell provides the means for recombining the stone within proper gradation limits.

Aggregates are charged into the four-compartment 300-ton aggregate bin over a 24-in. inclined Columbus belt conveyor. This system is capable of handling 300 tons of materials per hour. A reversible transfer belt cross conveyor is used in place of the customary chute arrangement to selectively charge the bins.

Bulk cement is received from the Detroit plants of the Peerless Cement Corporation with shipments of up to 160 bbl. being handled by truck delivery. An independently driven screw conveyor takes the cement from the truck unloading point and transfers it by bucket elevator to the two 600-bbl. storage bins at the rate of 250 bbl. per hour. Two types of cement can be handled and stored. Cement is carried from the storage bins to the batching plant by 14-in. screw conveyors.

Written batch orders are relayed from the dispatcher to the plant operator. Mix designs are standardized at all the Winkworth plants. Code numbers and colors distinguish the various mix designs which are compiled in book form. The operator consults these references by code number for batching weights.

Aggregates are weighed on a combination dial-beam system incorporating inverse weighing on the dial. The four beams and the automatic sequence weighing built into the system permits weighing on two beams while setting up a subsequent batch on the remaining two beams. Sand and coarse aggregate are individually weighed in sequence. With this arrangement, the plant oper-

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Compare features — then compare prices! No other machine gives you as much as the Fleming "30" Triple-Block Machine. It's built *rugged* to deliver the steady, dependable day-in and day-out performance that block men need to CASH-IN-BIG on today's growing demands for concrete masonry. What's more — and this is something to remember — the Fleming "30" is priced substantially less than other high-production models on the market, and its original cost installs a *complete* package in your plant, "ready-to-roll!" There are no expensive extras to buy. The Fleming "30" brings you *everything* you need to produce the finest quality block at the lowest unit cost, and that includes a mold to make three 8 x 8 x 16" blocks, an Off-Bearer Hoist and other items, in addition to the Magnetic Off-Bearer, Front End Pallet Feeder and Block Ejector. There are more reasons why the Fleming "30" is the best investment a block man can make. Write for price and literature today, and ask for details of our convenient financing plans.

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Please rush complete data and price, including terms, on the Fleming "30" Triple-Block Machine.
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☐ Cube Cracker Block Splitter.
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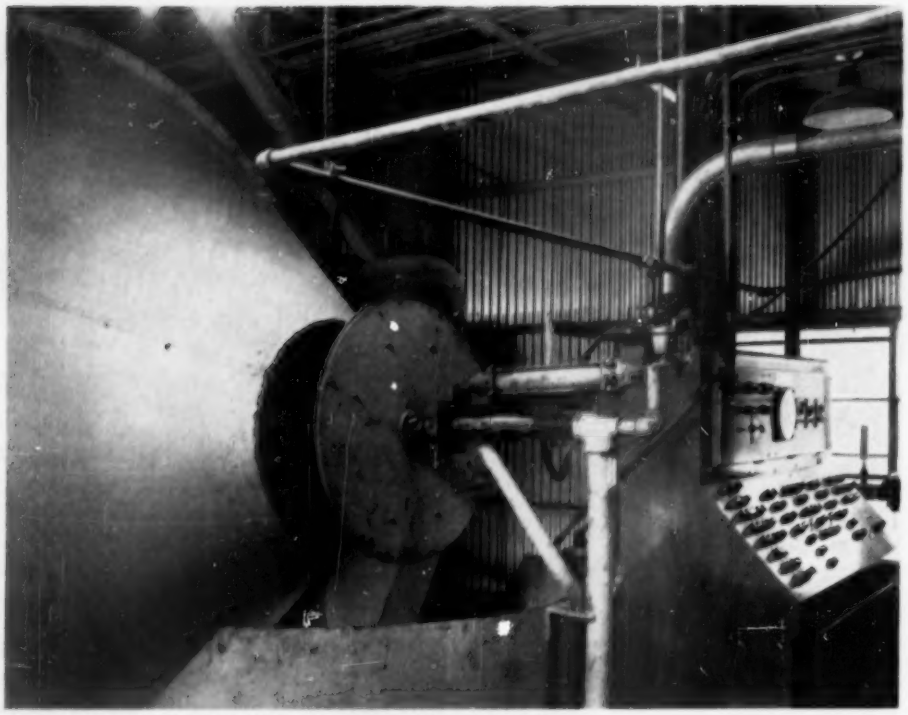

Six cubic yard tilting mixer, left, and control panel console, right

ator is able to check his work carefully and without haste, insuring a higher degree of accuracy. Design charts are worked out in batch sizes from one-half to 6 cu. yd. by ½ cu. yd. increments.

When a given batch has been set into the weighing system, the operator presses the aggregate cycle button. Through the medium of electrical control and remote air operation of charging gates, the system first charges the coarse aggregate and then the sand into the weigh batcher, using a separate beam for each weighing operation.

The aggregate flows through wide open charging gates until a point is reached within 1200 lb. of the correct weight. At this point a switch in the dial head actuates the air cylinder controlling the gate, moving it rapidly to about a three-fourths closed position. Here the gate contacts a limit switch which holds this position until the zero point is reached. The gate then closes quickly, reducing the amount of material "hanging in air" to a practical minimum.

Because of the electric interlocks, sand cannot be weighed until the stone weighing is complete and the stone gate closed. Sand weighing is controlled in the same manner as the stone.

Cement batching is done with three sets of preset dials on the panel, a batch size selector and a dial scale equipped with 2-lb. minimum graduations.

The operator sets the one yard batch weight on one of the pre-set dials, selects the bin from which he wishes to draw cement, sets the size of the batch to be weighed on the batch selector and presses the cement cycle button. For a weighing operation to proceed, the weigh batcher must be completely emptied of its previous batch and in balance with discharge gate closed. Through the use of electronic equipment, the cement weighing is automatically completed with speed and accuracy. The electrical system for cement weighing includes a mid-air compensator.

The batch water is metered through a 3-in. Niagara Electricontact meter equipped with a 10-in. diameter reading dial. The meter is set by hand and actuated by push button from the control panel.

The hot water system included a 2000-gal. Patterson-Kelley hot water heater capable of heating 2500 gal. of water per hour through a 100 deg. F. rise. A 100 hp. Continental gas-fired boiler manufactured by Boiler Engineering and Supply Co., Phoenixville, Penn., supplies high pressure steam for the hot water and heating systems.

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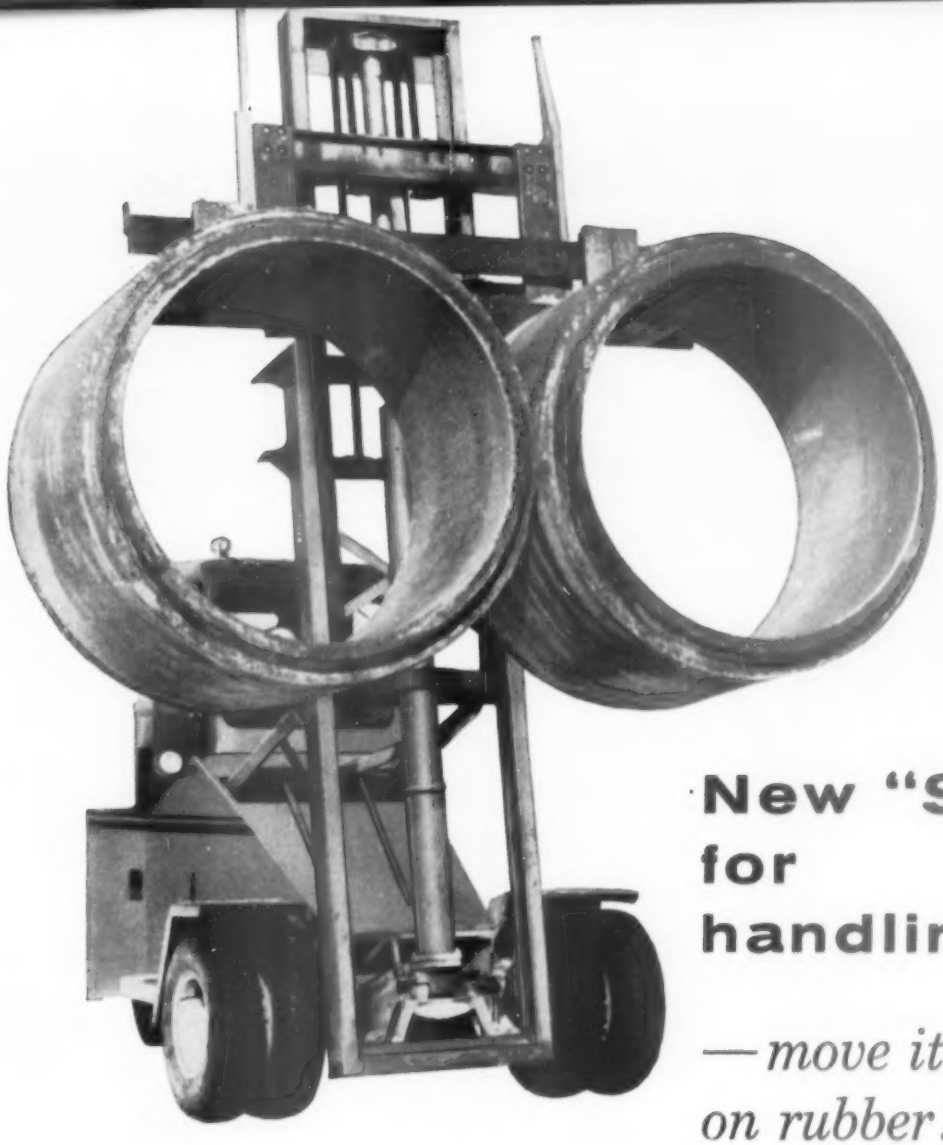

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You can move pipe where you want it, when you want it—without any waiting. You can set up your own on-the-job storage yard from otherwise unused ground around a work site.

Rough terrain, mud and bad weather are no problem for the big Clark pneumatic tired fork trucks. Balanced weight distribution and large sized tires guarantee positive traction. Low center of gravity combined with high underclearance provides exceptional operating characteristics under all types of weather conditions.

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Here's a truck that is a new standard for the industry. Your local Clark dealer can supply details on how Clark's pipe handling pneumatics can increase profits in your operation. Or, write for specification sheet.

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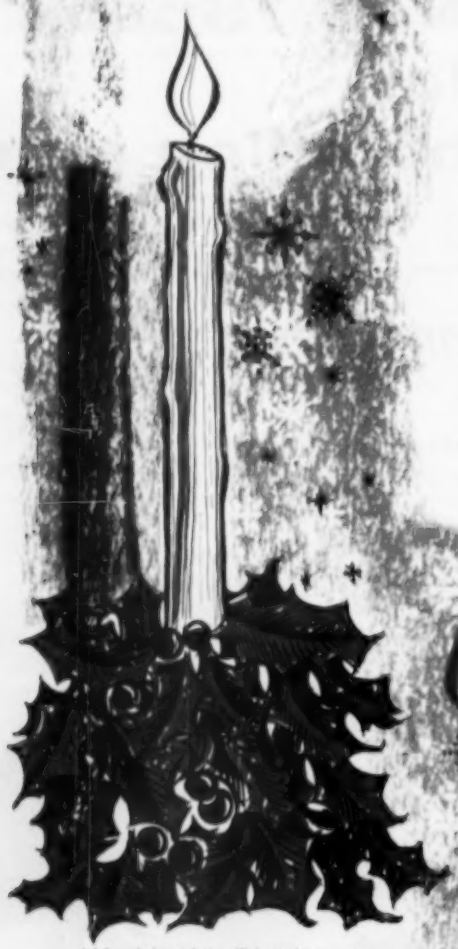
ALL OF US AT COLUMBIA WISH YOU A . . .

Merry Christmas



It is our sincere wish that not only this holiday season be bountiful and happy, but that the many years to come will bring you continued prosperity, happiness and contentment. It is our wish, too, that the many friendships we have built in the industry may continue to prosper in an association of mutual trust and benefit.

We wish also at this time to thank our many friends throughout the industry for the patronage and consideration extended our firm throughout the past year. May we continue to merit your goodwill.

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World-wide Distributors and Manufacturers of Concrete Block Making Equipment

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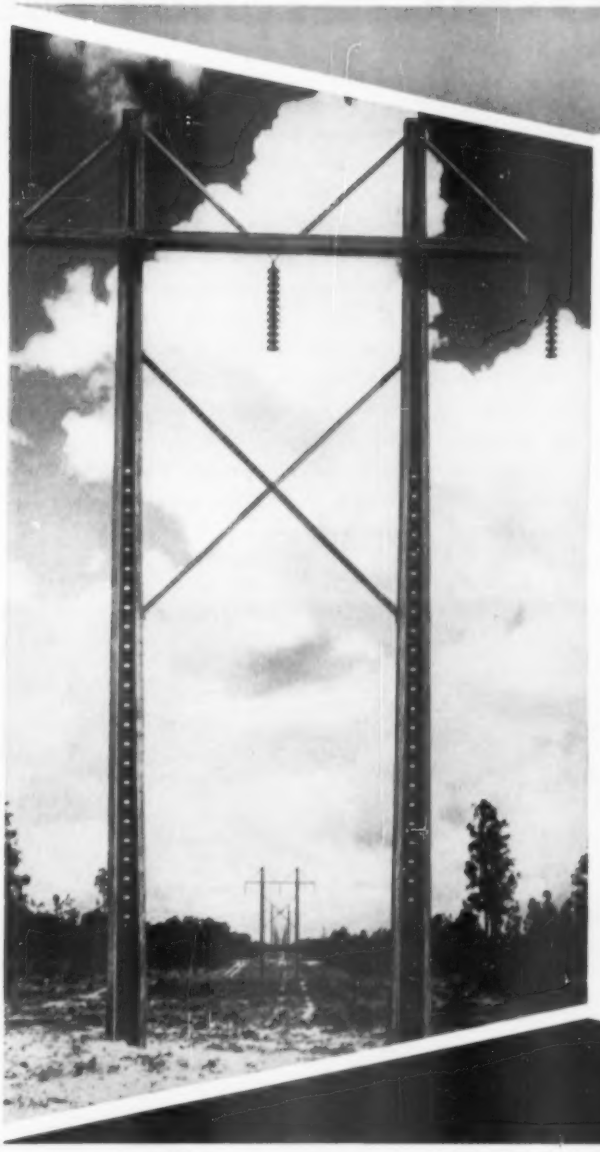

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Roebling tensioning materials
have created many markets
for prestressed concrete . . .
warehouses • garages • stadiums
bridges • piers • hangars
and other construction

TODAY...

Another new market for fabricators

Prestressed* Concrete Line Poles

Shown here is one of the latest in the constantly growing list of applications for prestressed concrete. These power line poles were designed and fabricated for the Florida Power Corporation by Finfrock Industries, Inc., Orlando, Florida.

Each pole is prestressed with $\frac{3}{16}$" diameter Roebling uncoated 7-wire stress-relieved strands, pretensioned and bonded to the concrete.

Easily transported and installed, the 65 ft (above ground) poles have a life expectancy of 50 to 100 years. Once erected, they are maintenance-free. The high cost of replacement every few years is eliminated.

Why don't you investigate the possibilities of this new market to increase your profits? Roebling engineers, who pioneered in the development of prestressed concrete in America, will supply general information or help with specific problems. Write to Construction Materials Division, John A. Roebling's Sons Corporation, Trenton 2, N. J.

ROEBLING CF&I

A Subsidiary of The Colorado Fuel and Iron Corporation

*Not *to be confused with ordinary reinforced concrete*

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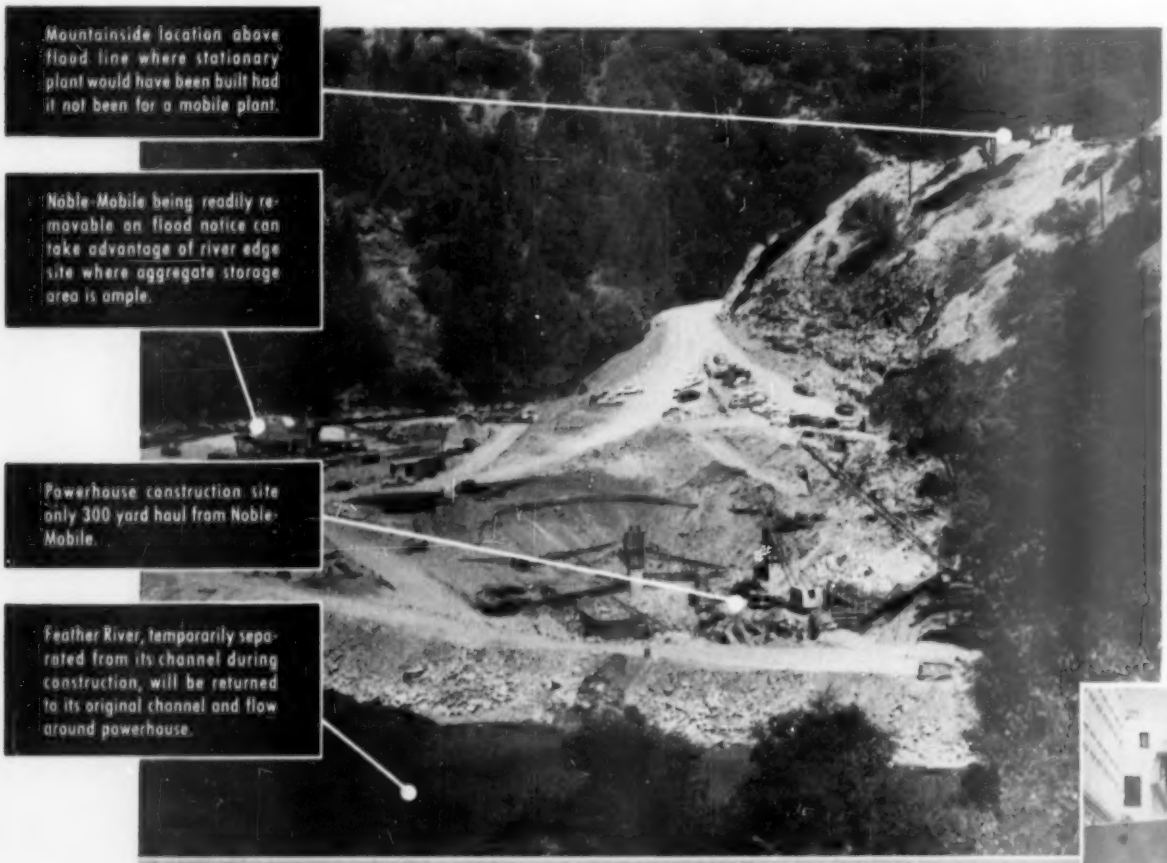
How NOBLE-MOBILE solved flood

Flash floods that could wash away a fixed batching plant installation were a threat at the site of the powerhouse construction by the Bechtel Corporation for Pacific Gas & Electric Company on the Feather River, California. A gravel bar at the river edge was the logical site for a concrete batching plant because it was the only place with sufficient area for aggregate storage. Yet, with flood danger, the only practical alternative site was a point 110 ft. up the canyon wall off the Western Pacific Railroad right-of-way. A stationary plant there would have required extensive concrete foundations and a major earthmoving job to level an area of sufficient size to store aggregates. The site also would have entailed transit truck hauls under all weather conditions down a steep grade.

Noble-Mobile made the mountainside installation unnecessary. This batching plant on wheels was put into operation at the river edge as it could be hauled out to high ground on only a day's notice of flood. The mobility permitted scheduling work for 12 months a year so that the job could be completed by 1958. Noble-Mobile saved 70% in installation costs as against a stationary, mountainside plant. On this project, Noble-Mobile normally has to operate only 50% of the working day in order to provide the 25,000 yards of concrete that ultimately will be used. The batch is hauled by transit trucks to the construction site only 300 yards distant.


Mountainside location above flood line where stationary plant would have been built had it not been for a mobile plant.
Noble-Mobile being readily removable on flood notice can take advantage of river edge site where aggregate storage area is ample.
Powerhouse construction site only 300 yard haul from Noble-Mobile.
Feather River, temporarily separated from its channel during construction, will be returned to its original channel and flow around powerhouse.

View of construction of semi-outdoor powerhouse designed to withstand the damaging effects of flood. Outside dimensions will be 175 ft. by 116 ft. by 87 ft. high. Construction area has been separated from the river course by a low temporary levee around the area for the period of the construction. The foundation of the plant is at the bottom of an excavation to a depth of 51 feet below the river surface. On completion of the project, the river will be returned to its original channel. 36 ft. of the powerhouse will extend above the normal river level.

NOBLE-MOBILE *Batchmobile*

Covered by patents pending

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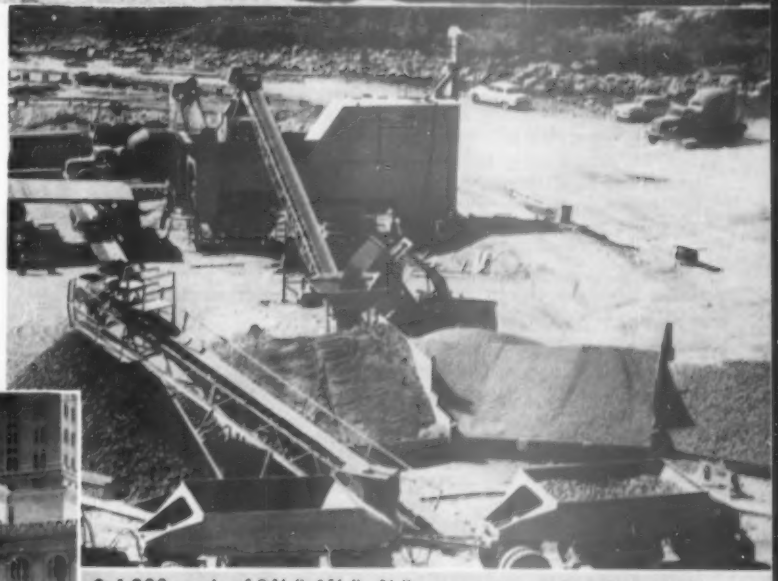
problem and saved 70% in installation cost

NOBLE-MOBILE BATCHING PLANT

supplies concrete to transit trucks. May also be used for dry batch or pre-mix. Has bulk cement storage silo with truck hopper unloading screw and elevator. Weighs aggregates and cement separately and simultaneously. Automatic or semi-automatic control. No field wiring, concrete foundations or crane time required on base plant.

Noble-Mobile is driven to the job site and goes into production promptly. Purchase is easier to finance than stationary plant.



1,000 yards of 2½", 1½", ¾" aggregates and sand, hauled by truck from Oroville 25.1 miles away, are stored in compartmented piles at the site. They are fed by a scooploader to a conveyor leading to the plant. The materials are automatically batched and discharged by a conveyor to the transit trucks for the approximate 2-minute haul to the pouring site.

DISTRIBUTORS: BIRMINGHAM, ALA., Equipment Service Co. • PHOENIX, ARIZ., Superior Equipment Co. • VANCOUVER, B. C., Westcoast Equipment Co., Ltd. • DENVER, COLO., Western Machinery Co. • BALTIMORE, MD., General Supply & Equipment Co., Inc. • CEDAR RAPIDS, IOWA, James W. Bell Co. • INDIANAPOLIS, IND., Manwaring Machinery Co. • DETROIT, MICH., R. G. Moeller Co. • ST. PAUL, MINN., Borchert-Ingersoll, Inc. • CLEVELAND, OHIO, Wepco Equipment Co. • LOS ANGELES, CALIF., Smith-Booth-Usher Co. • PORTLAND, ORE., Clyde Equipment Co. • PHILADELPHIA, PA., Furnival Machinery Co. • PITTSBURGH, PA., Equipment & Supplies, Inc. • AMARILLO, TEXAS, Plains Machinery Co. • DALLAS, TEXAS, North Texas Equipment and Supply Co. • HOUSTON, TEXAS, Boehck Engineering Co. • EL PASO, TEXAS, Border Machinery Co. • WACO, TEXAS, Richards Equipment Co. • SAN ANTONIO, TEXAS, Contractors Machinery Co. • SALT LAKE CITY, UTAH, Arnold Machinery Co. • SEATTLE, WASH., Star Machinery Co. • SPOKANE, WASH., Intermountain Equipment Co. • CASPER, WYOMING, Studer Tractor & Equipment Co. • MONTREAL, QUE., Laurentide Equipment Co., Ltd. • WINNIPEG, MAN., Huggard Equipment Co., Ltd. • BOSTON, MASS., Hodge & Matthois Co. • LOUISVILLE, KY., Emmett C. Watson Co. • NASHVILLE, TENN., Paterson Machinery Co.

Enter 1327 on Reader Card

Insulated Kilns Cut Fuel Costs Over 50 Percent

By WM. J. SHORE

INSULATED CURING KILNS can slash off more than half the fuel oil bill and still produce block equal to the product of the older uninsulated kilns. Kilns, that are insulated to lessen contact between interior exposed masonry and the curing steam, can achieve equal curing with lower temperatures and less steam consumption than ordinary kilns.

Since insulated kilns prevent heat from escaping to the outside, they give the same curing effect at 145 deg. that uninsulated kilns achieve at 170 deg. By sealing off one-half to two-thirds of the kiln masonry, insulation prevents unnecessary steam consumption. In addition, to achieve the proper temperature, insulated kilns require less steam and consequently, less fuel.

The new type kilns are designed to correct two weak points of present-day kilns—excessive weight and mass to steam entering the kiln and loss of heat to the surrounding atmosphere. The great weight and mass increases the amount of steam required to bring kilns to their proper temperature. The lack of insulation increases the amount of steam required to bring kilns to heat and to maintain this heat.

Although insulation's main purpose is the prevention of heat loss, it also has two other functions. In the old kilns (see sketch for comparison of two kiln types), a 5- or 6-in. concrete roof slab absorbs heat from the steam. It keeps on absorbing steam until it reaches 170 deg. F. After the slab is hot all over, heat begins escaping from the top side exposed to the atmosphere.

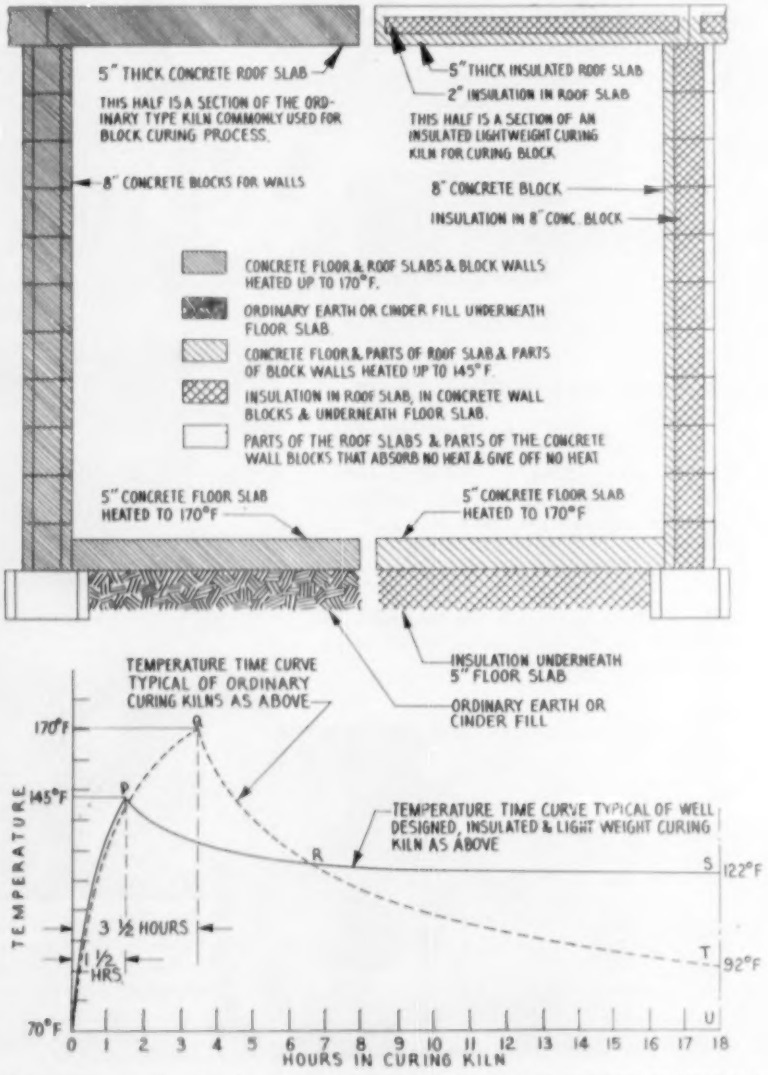
Instead of a 5- or 6-in. roof slab thickness in the old style kiln, there is only 1½-in. exposed to the steam with the new sandwich type roof plank; 1½-in. concrete on each exposed side with an insulating core of about 2 in. When this 1½-in. gets heated to kiln temperature and this heat reaches the top of this 1½-in. thickness, the insulation core prevents it from going farther. Thus, instead of having to heat a 5- or 6-in. slab of concrete, the insulated kiln only heats a 1½-in. thickness of concrete. This requires only one-third the amount of heat. No heat is lost because of insulation. The effect of the insulation is to cut down the weight of concrete masonry that is heated up in every curing cycle. The insulation seals off from one-half to two-thirds of the kiln masonry and thus avoids unnecessary consumption of steam.

The sketch illustrates the same principle with respect to heating up the entire 8-in. block as is necessary in ordinary kilns. In the well-designed kilns, only one-third of the block is heated up. Therefore they require less steam than before.

The earth underneath the floor slab is always cooler than the kilns. When kilns are up to heat and the entire 5-in. floor slab is up to top heat, some heat begins to leave the slab and go into the earth. Where the floor slab is on top of insulation, the slab once heated up remains hot because no heat can escape into the earth.

It is common experience in all block

(Continued on page 210)


5" THICK CONCRETE ROOF SLAB
THIS HALF IS A SECTION OF THE ORDINARY TYPE KILN COMMONLY USED FOR BLOCK CURING PROCESS.
8" CONCRETE BLOCKS FOR WALLS
5" THICK INSULATED ROOF SLAB
2" INSULATION IN ROOF SLAB
THIS HALF IS A SECTION OF AN INSULATED LIGHTWEIGHT CURING KILN FOR CURING BLOCK
8" CONCRETE BLOCK
INSULATION IN 8" CONC. BLOCK
CONCRETE FLOOR & ROOF SLABS & BLOCK WALLS HEATED UP TO 170°F.
ORDINARY EARTH OR CINDER FILL UNDERNEATH FLOOR SLAB
CONCRETE FLOOR & PARTS OF ROOF SLAB & PARTS OF BLOCK WALLS HEATED UP TO 145°F.
INSULATION IN ROOF SLAB, IN CONCRETE WALL BLOCKS & UNDERNEATH FLOOR SLAB.
PARTS OF THE ROOF SLABS & PARTS OF THE CONCRETE WALL BLOCKS THAT ABSORB NO HEAT & GIVE OFF NO HEAT
5" CONCRETE FLOOR SLAB HEATED TO 170°F
5" CONCRETE FLOOR SLAB HEATED TO 170°F
INSULATION UNDERNEATH 5" FLOOR SLAB
ORDINARY EARTH OR CINDER FILL
TEMPERATURE TIME CURVE TYPICAL OF ORDINARY CURING KILNS AS ABOVE
TEMPERATURE TIME CURVE TYPICAL OF WELL DESIGNED, INSULATED & LIGHT WEIGHT CURING KILN AS ABOVE
170°F
145°F
70°F
TEMPERATURE
Q
P
R
S
T
U
122°F
92°F
3 ½ HOURS
1 ½ HRS.
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
HOURS IN CURING KILN

Above: Cross section showing a comparison between insulated and non-insulated kiln design. **Below:** Time-temperature curves illustrating the relative efficiency of insulated and non-insulated curing kiln designs

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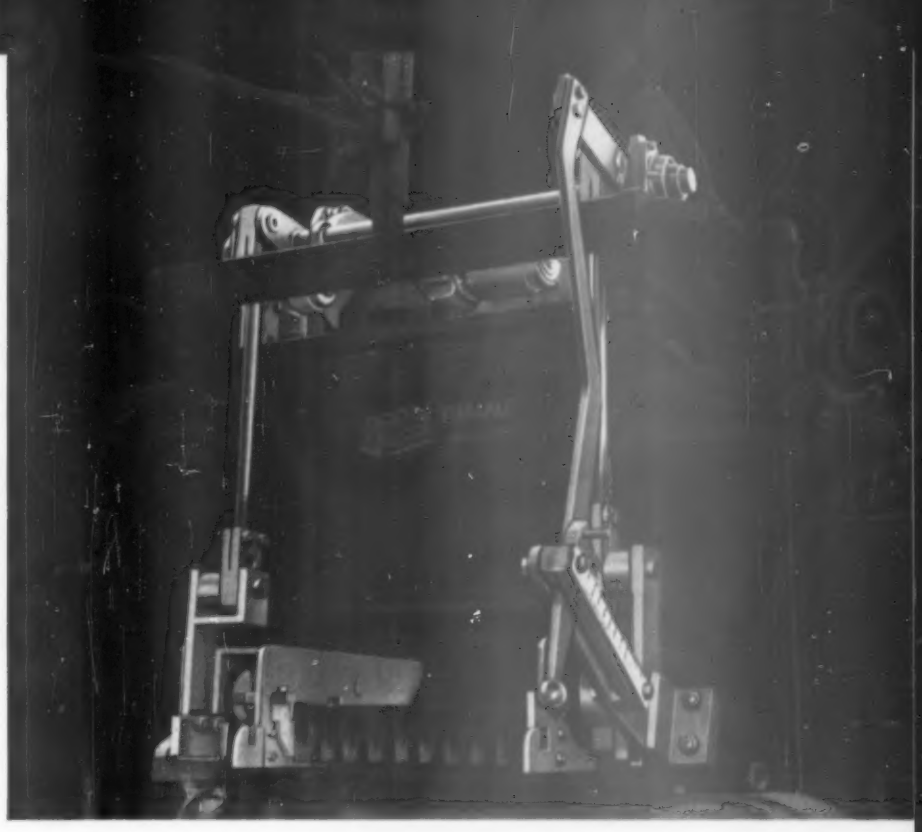
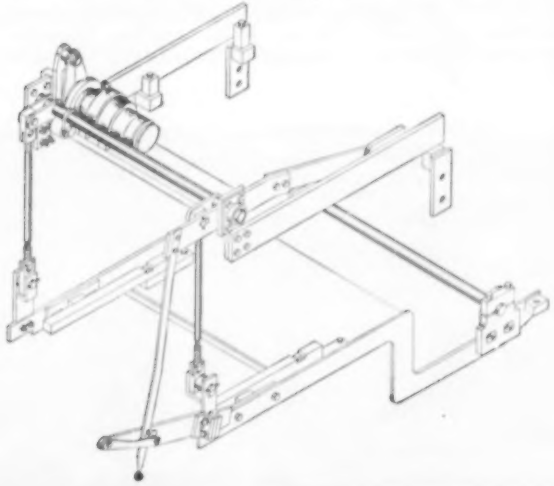
CONTROL PANEL, with 10" dial indicator. Shows at a glance the exact finish time in seconds and fractions of a second. Panel includes feed and finish time setting — and selector switch for either hand or automatic operation.



AUTOMATIC FEED CONTROL...

Another Besser Contribution to the Concrete Block Industry

You want all your block to be of uniform quality. Then it's important to maintain uniform finish time in producing the block. The New Vibrapac provides a visible means of controlling quality. You can actually see the seconds . . . even fractions of a second . . . consumed in vibration and the length of feed time. The drawing below shows how the automatic feed control mechanism operates.



Here's how you benefit from the New BESSER Automatic Feed Control:

1 **Consistent Production.** The machine speed is kept constant due to automatic compensation for irregular feed or mixture control. Feeding by "guess" is eliminated.

2 **Quality Controlled Block.** Automatically adjusts amount of feed to the mold, assuring uniform finish time and high quality block.

3 **Less Material Waste.** Controls density of block. No overweight or underweight units. Every block is made to a specified predetermined amount of concrete.

4 **Less Supervision Required.** The electric brain does the "thinking" . . . controls the amount of feed for constant uniformity of all types of units. Supervisor merely checks the larger indicator dial to see that quality is being maintained.

• • •

The new Besser Automatic Feed Control mechanism will enable every block maker to produce BETTER block even FASTER. Get the facts! Contact your nearby Besser representative.

A 56—103

BESSER COMPANY

First in Concrete Block Machines

BOX 135 • ALPENA, MICHIGAN, U. S. A.

Ready-mixed concrete plant showing aggregate and cement bins

Automatic Batching

Cuts Costs at Jacksonville, Fla. Plant

By C. E. WRIGHT

IN THE HIGHLY COMPETITIVE and rapidly expanding concrete market of Jacksonville, Fla., the Jacksonville Concrete Co. (formerly Ingram Concrete Co.) placed itself in better position to compete at a profit by construction of an entirely new, fully automatic batching plant.

When Martin and Albert Stein bought the Ingram Concrete Co., which had been established in Jacksonville in 1940, Ingram had built up a good business, though restricted to a space of 1½ acres on the St. Johns River at the foot of Hogan Street, almost in the heart of the city's business center. When the new owners took over three years ago, it was clear that no expansion of the business was possible with the handicap of severely limited storage space. In fact, there was room only for about one week's supply of aggregate and less than one day's supply of cement. Thus the maintenance of a steady flow of these materials became one of the headaches of the business.

In 1954 it was decided to seek a new site and build an entirely new plant. The site selected consists of eight acres in an industrial area in the eastern end of the city. In the matter of storage facilities alone considerable economy has been effected. For example, the new and larger plant site permits the storage of four types of aggregates as against two types in the old location and two types of cement as against one. Also, there is storage room for 60 carloads of aggregate, or a two or three weeks' supply, and cement bin space for three or four weeks' supply.

One of the things that makes ample storage space of prime importance in the Jacksonville Concrete Co. operation is the long haul for its coarse aggregates, which come from Montgomery, Ala., a distance of about 350 miles. Sand is hauled a much shorter distance, about 70 miles from Interlachen, Fla. Considering the freight costs of these hauls, $2.50 a net ton for the coarse aggregates and $1.20 for sand, other economies had to be found to offset them.

It is in the push-button control of mechanized operations that major savings have been made. From the arrival of materials in railroad cars to the loading of mixer trucks, a push button or switch directs the flow of materials. Aggregates arrive in hopper-bottom cars, which dump to a belt conveyor operating in a tunnel under the tracks, then up a 175-ft. incline to a 100-ft. traveling, reversible shuttle belt atop the trestle which unloads the aggregates to a stockpile. This shuttle is operated from the bottom of the conveyor. A 60-ton car can be unloaded in about 20 min.

In like manner, bulk cement is unloaded by a screw conveyor onto belt conveyors, which carry it to storage bins totaling 2500 bbl. capacity.

Movement of materials to a Johnson mixer is also by belt conveyor. In all, the plant has 1000 ft. of belt conveyors. Coarse aggregates, sand and cement are all transported to the mixer by conveyor. By automatic weighing of these ingredients, a 6 cu. yd. mixer truck can be loaded in 2½ to 3 min.

To expedite deliveries and spot trouble quickly when it occurs, Jacksonville Concrete Co. has equipped the cars of supervisors and salesmen and its service trucks with two-way radio. A supervisor on a major job can check quickly if a mixer truck fails to arrive on schedule or he can expedite deliveries on jobs. If a road breakdown has occurred, a service truck is immediately dispatched to the scene. To keep trucks on the road, the company has its own maintenance shop, effecting further savings in time and expense.

A recent addition to the plant is a Besser block machine, capable of turning out 900 -8 in. equivalent con-

(Continued on page 210)

Conveyor system with shuttle belt conveyor for stockpiling, to the left, and concrete block plant in background

The addition is approximately 91 ft. x 114 ft. with 16 ft. x 30 ft. bays. Prestressed beams run the 114 ft. length, spanning 16 ft. over the precast columns. Prestressed channel slabs of 12 in. depth span the 30 feet between the beams at floors and roof.

Owner: MINNESOTA RUBBER and GASKET CO., St. Louis Park, Minn.

Architect: MAGNEY, TUSLER & SETTER, Minneapolis, Minn.

Precast concrete manufactured and erected by: PRESTRESSED CONCRETE, INC., St. Paul, Minn.

PRESTRESSED AND PRECAST STRUCTURAL CONCRETE

FRAMING saved time and money for

Minnesota Rubber and Gasket Company

The new three story addition to the St. Louis Park, Minnesota, plant of Minnesota Rubber and Gasket Company is constructed entirely of precast concrete columns and prestressed beams, floor channels, and roof channels. These modern materials cut framing costs 20%, permitted 4 months earlier occupancy and eliminated expensive fireproofing.

LEHIGH EARLY STRENGTH CEMENT

CEMENT saved time and money for

Prestressed Concrete, Inc.

All structural units were cast in the modern plant of Prestressed Concrete, Inc. Using Lehigh Early Strength Cement and hot water curing, the concrete reached 3500 PSI in 12 hours. As a result, the manufacturer gained maximum production efficiency and economy through early removal of units and quick reuse of forms.

Whatever your cement requirements, there are Lehigh Cements to fit them. And remember, in the manufacture of special precast units, the chances are that Lehigh Early Strength Cement will save you time and cut production costs.

Interior view of Prestressed Concrete's casting plant. Four channel beds at left are 200 ft. long. In center is bed for precasting reinforced beams. Next to the far right is a 100 ft. bed for prestressing beams. At far right is a form for precasting columns.

- LEHIGH EARLY STRENGTH CEMENT
- LEHIGH PORTLAND CEMENT
- LEHIGH MORTAR CEMENT
- LEHIGH AIR-ENTRAINING CEMENT

LEHIGH PORTLAND CEMENT COMPANY

Allentown, Pa.

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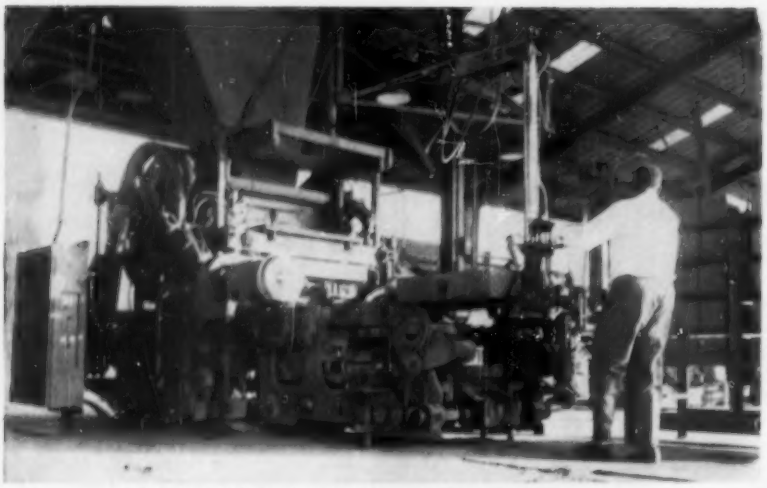


Interior of block plant building which is open at the sides

crete block an hour. Curing rooms which will take 11,000 blocks at a time are operated with an automatic cut-off when the steam curing cycle has been completed. This curing system will produce a 14-day sun-cured strength in three days of steam curing.

In front of the curing rooms, on a concrete apron, are several circular, ball-bearing supported revolving tables, on which racks of concrete block are placed for cubing. By revolving the table a workman can perform the cubing operation with mechanical cubers while standing in one position.

The Jacksonville Concrete Co. adopted its present name as a change from Ingram Concrete Co. as of January 1, 1955, with 27 year old Martin Stein, president, directing the operation. When he came into the business three years ago, he had had no previous experience in concrete manufacturing, but he had two years of engineering while serving in the U. S. Navy and had taken law and business administration at the University of Florida. Associated with him in the active management of the company's operations are his brother, Albert, secretary; J. Edward Zimmerlee, sales manager; Harold Slick, production superintendent; George Buquo, block superintendent; F. D. Sprinkle, trucking superintendent; Alvin Rubin, office manager.

Within a few months after the new plant was placed in production, a group of men prominently interested in the Southern Materials Co. of Norfolk, Va., purchased a substantial interest in the company from the Stein family. The other officers are: H. C. Hofheimer, chairman of the board of Southern Materials Co., treasurer; J. P. Sadler, vice-president of Southern Materials, is also vice-president of Jacksonville Concrete, and W. L. Flaugher, treasurer of Southern Materials, is a director of the Jacksonville company.

With the new plant, Jacksonville Concrete now has three plants serving the Jacksonville area within a radius of about 15 miles. A smaller plant in West Jacksonville serves the western, southwestern and northwestern parts of the city. The old plant of the Ingram Concrete Co. has been moved to the northern section of the city to serve a rapidly expanding residential development and part of the 35,000 cu. yd. of concrete that will be required for a $40,000,000 expansion of the St. Regis Paper Co. plant.

RED RIVER READY MIX

(Continued from page 189)

Aggregate enters the plant via the long inclined conveyor and is discharged into the three-compartment, 60-cu. yd. bin above the Besser block machine. A short, 36-ft. cross conveyor, fed by flop gates, has been provided to divert the aggregate to the ready-mixed plant. The ready-mixed concrete is stored in a four compartment, 180-cu. yd. bin.

Red River operates five ready mix trucks of 4½- and 5½-cu. yd. capacity, and serves a wide construction market in a 70-mile radius of Grand Forks.

Home Plans Feature Block

NATIONAL CONCRETE MASONRY ASSOCIATION has prepared a 64-page home plan book, "Concrete Masonry Homes," which shows the planner, builder and prospective homeowner the possibilities in beauty and economy. Forty home designs are featured, each by a different architect. The book is copiously illustrated, with six pages in full color.

INSULATED KILNS

(Continued from page 206)

plants to note that the bottom tier of block is never cured as well as the top tier. This is because heat leaves the kiln through the floor slab into the earth as the floor slab does not remain hot. In an insulated kiln, the floor slab remains at its top heat, and all block on the lowest rack tier obtain the same amount of curing as any other block on the rack.

The time temperature curves (see illustration) are based upon actual performance in each type of kiln. They are not theoretical, nor based upon what might take place. Being charts produced by the same recording thermometer they are comparable and free of error in this respect.

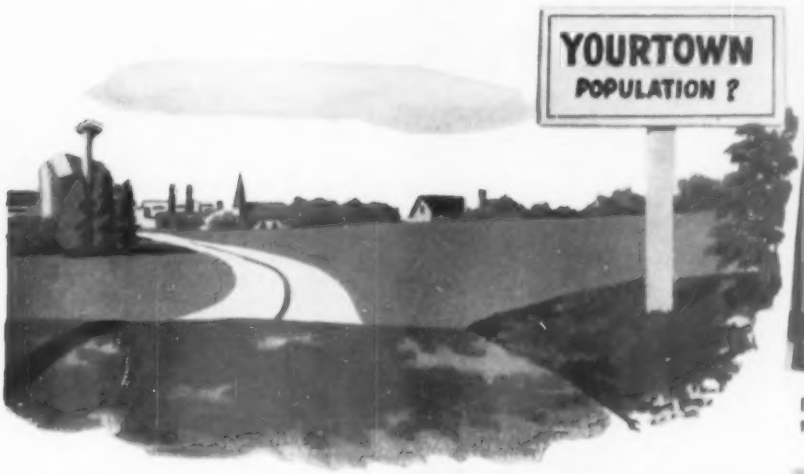
The dash curve is a record of temperature drop in the ordinary uninsulated kiln. The solid curve is a record of temperature drop in the insulated efficient kiln. Temperature was brought up to 170 deg. F. and then steam was shut off. From 170 deg. the temperature dropped to 92 deg. in 18 hr., in the uninsulated kiln. Temperature in the insulated kiln was brought up to 145 deg. F., steam was shut off, and in 18 hr. the temperature dropped to 122 deg. F. One kiln dropped nearly 80 deg., the other dropped 23 deg., roughly about 25 percent as compared with the uninsulated kiln. If perfect insulation were possible, there would be no drop in temperature at all. However, there is no perfect insulation. These temperature-time curves permit us to make comparisons on curing effect in an insulated kiln and one that is not insulated.

The amount of cement hydration shows the degree of strength gained, or curing effect; it is based upon the product of temperature and time. Thirty degrees for 10 hr. gives the same curing effect as 60 deg. for 5 hr. We may therefore compare curing effect by making comparison with the areas included in the temperature-time curves. Curing effect in the uninsulated kiln would be represented by the area O P Q R T U. Curing effect in the insulated kiln would be represented by the area O P R S T U. If the two triangles P Q R and R S T were alike, then the areas would be equal and curing effect would be identical. (As a matter of fact, curing effect for the insulated kiln appears to be somewhat superior to the uninsulated kiln. But for the purposes of this discussion, let us assume they are equal.)

In both insulated and uninsulated kilns, steam was admitted at the rate

(Continued on page 225)

How Small a Town Will Support a Ready Mixed Plant?



Butler Installation in a town of 1,047 population.

There are communities of 1000 population (and less) in which BUTLER Plants are proved and profitable investments. Many orders — and in ever increasing flow — come to BUTLER for ready mixed plants in towns of 1500 to 3000. Cities of 25,000 people have as many as 3 BUTLER installations.

There seems to be no end to the fantastic amounts of concrete poured in this country.

And there are still many markets wide open and hungry for a ready mix operation.

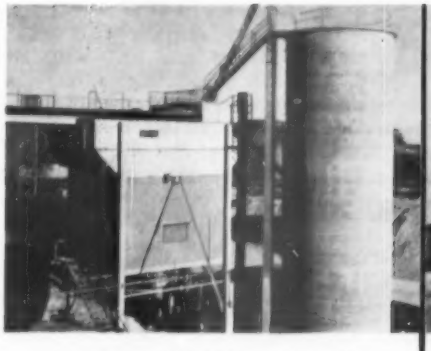
If *you* are planning to enter this thriving industry be sure to take advantage of the wide knowledge, long experience and extensive engineering service which BUTLER provides to help you launch a profitable enterprise.

Why not write or wire BUTLER about it today?

. . . in town of 728 population

BUTLER BIN COMPANY

993 BLACKSTONE AVENUE • WAUKESHA, WISCONSIN



. . . in town of 1,190 population

. . . in town of 12,900 population

. . . in town of 6,725 population

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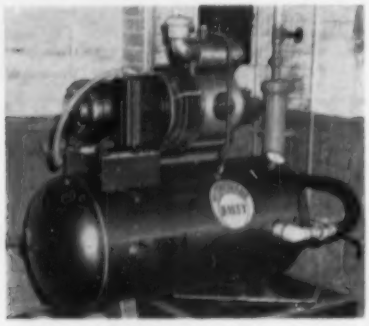
NEW MACHINERY



Rotary Compressor

DAVEY COMPRESSOR CO., Kent, Ohio, has introduced a new 5-hp. tank-mounted rotary compressor for general industrial applications. Called the Davey Hydrovane, the unit has a displacement of 21 c.f.m., and is direct connected to an 1800-r.p.m., 5 hp. electric motor. Controls are modulation, start-stop, or one which is a combination of the two. Maximum working pressure is 200 p.s.i. for continuous operation, or, for intermittent use, 250 p.s.i Units are available with either horizontal (see illustration) or vertical tanks.

The Davey Hydrovane has a patented "multi-thrust" rotor blade and contour-bored stator. The rotor-stator arrangement, in combination with two multi-stage cooling oil injection chambers, is said to compress air more efficiently, quietly, and at relatively lower temperature.

Enter 211 on Reader Card

Platform Trailer

HOBBS TRAILERS, Fort Worth, Texas, has brought out a new heavy-duty platform trailer in its K-series. Having a rated capacity of 45,000 lb., the trailer weighs 10,849 lb. Rugged enough for handling concentrated loads off the highway, the unit is said to be light enough for moving profitable, legal payloads along the road. It is produced in lengths from 33 to 41 ft.

The new trailer's center frame is a 12-in. I-beam of high tensile steel. Cross members are stronger, closer together, and the center section is strengthened by eight knee-braces between the center frame and the outer frame rail, four to a side. A folding kingpin, for use with a two- or three-axle truck and a two-speed landing gear are features of this platform trailer model.

Enter 212 on Reader Card

Pallet Truck

VALLEY CRAFT PRODUCTS, INC., 770 Jefferson Ave., Lake City, Minn., has announced the Ezy-Tilt pallet truck, designed for easy tilting of loads as heavy as 1000 lb. Equipment includes a special shoe which automatically locks the truck into tilting position as it is moved vertically against the load and which allows the tipping action to be accomplished with a minimum of effort.

Savings in pallet costs are said to be possible inasmuch as the double fork design of the shoe allows an inexpensive pallet, reinforced by a center cleat, to be used. Safe tipping of heavy loads is also claimed for the model. Two-wheel brakes are available which provide safety when moving heavy loads down ramps.

Enter 213 on Reader Card

Stressing Wires

THE PRESCON CORP., 905 Navigation Blvd., Corpus Christi, Texas, organized last April through the merger of Prescon of Texas and Prescon, Inc., Paramount, Calif., produces steel wire tendons for stressing concrete. The Prescon system was devised in 1950 by Karl H. Middendorf, utilizing cold-formed heads to provide positive end anchorage for the high-carbon, steel-wire stressing tendons, instead of by friction grips or threaded bars. Production and distribution facilities now serve a market throughout the United States.

Prescon tendons are custom-made to meet the requirements of a specific structure — dimensions of bearing plates and stressing shims are established in keeping with the demands of design; wires are measured with fixed stops and under controlled tension to assure exact duplication of length; and the tendons are delivered complete with end bearing plates attached, ready for immediate insertion in the forms. Pre-drilled holes in the plates provide a simple means of anchoring the tendons with ordinary bolts. Intermediate attachment is accomplished by wire tying to chairs or reinforcing bars. The stressing procedure is said to be simple—a hydraulic jack being the only equipment needed to apply stress.

Use has been made of Prescon tendons in precast girders, columns, and beams, in flat-plate lift slabs, in buttresses, in one-way lift slabs, in pipe-support beams, in circular and rectangular slabs, and in roof decks, walls, joists, and arch ties.

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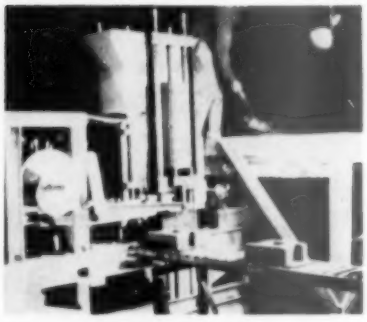

Block Machine

ROTH ENTERPRISES, 400 N. Ogden Drive, Los Angeles 36, Calif., has developed the Hyde "Impact" machine capable of producing 700 to 1400 hollow 8- x 4- x 16-in. units per hour, or eight 2- x 4- x 8-in. solid brick at one stroke. The 6- x 12- x 5-ft. machine, weighing 12,000 lb., requires 7½ hp. and 1000 watts on the vibrator. Operating advantages claimed include a wide range of moisture and mixtures; block have sufficient moisture so that steam room is not needed to supply moisture for preliminary setting. Mold life is estimated at more than 1,000,000 cycles. Refitting is said to be accomplished in 30 min., requiring only a preformer, forming mold, finishing mold, and hammer shoe. Only one skilled operator is needed.

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WESTINGHOUSE Transit Mixers

Have the Most Efficient Drum Drive Mechanism

• No other mixer has a drum drive which is as positive, sturdy and trouble-free as Westinghouse and yet affords complete flexibility. Follow the drive from engine to drum in the illustration at right:

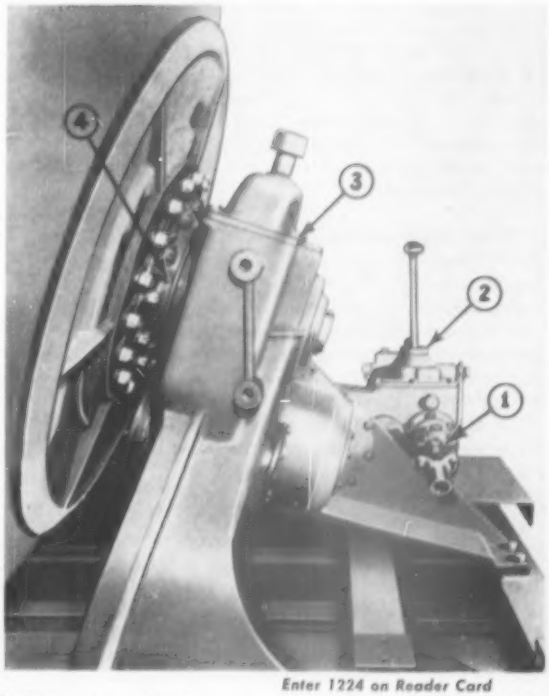
1. A strong universal joint takes the engine power to the transmission eliminating possible strains due to frame flexing.

2. Two-speed transmission (standard on all models) permits wide range of drum revolutions, from 2 to 11 r.p.m., within engine's most efficient operating range—600 to 1700 r.p.m.

3. Drum is driven by fully-enclosed gear drive—*an exclusive patented feature.* No chains or exposed gears to wear out and replace. Requires little attention and maintenance.

4. Drum has large ball-and-socket mounting *at the drum* —an exclusive feature. The only mounting which does not transmit misalignment to driving parts due to flexing of truck and mixer frames in traveling over uneven surfaces.

Westinghouse mixers are available in 5 sizes—4½ to 6½ yd. They have other important features you'll like. Before buying another mixer write for descriptive literature to



TRANSIT WESTINGHOUSE MIXERS

WESTINGHOUSE TRANSIT MIXER DIVISION
LeTourneau-Westinghouse Co.
INDIANAPOLIS • INDIANA

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Your Front Office Must CLICK

47: A producer views the ready-mixed concrete business. This article deals with the important function of office personnel and records

By JAS. A. NICHOLSON*

IN THE READY-MIXED CONCRETE INDUSTRY, most of the paper work is done in the front office. Office employes take orders, plan delivery schedules, dispatch trucks, act as timekeepers, maintain production cost, safety and other business records, check on credit, handle complaints, prepare invoices and statements, make out purchase orders, check inventories, list important details of employe performance, and even compute financial statements.

In his front office a producer must develop the tools for him to operate efficiently. From his front office he should get most of the "know-how" to successfully run his business; a producer must get on-time, accurate information that will give him required controls over assets, costs, and profits.

The principal tasks of the front office concern preparing, posting, filing, and reporting. These are matters that, when put together in a system or systems, come under the general heading of accounting. Practically all this work is done on forms and made into records to be properly filed. Every producer should take a good look at presently used company forms and the record filing system.

Front office activities can be effectively coordinated and efficiently handled through the establishment of simple, well conceived routines. Plant and delivery efficiency is largely dependent on effectiveness of front office procedures. In this discussion, we are primarily concerned with such office activities as billing of accounts, recording of receivables and cash receipts, credit handling, making purchases, developing cost control, timekeeping, and payroll preparation, preparing financial statements and budgets, working with breakeven figures and supervising capital investments.

Before changing any office methods, the present routines should be carefully studied to determine whether they can be substantially improved to achieve desired results. For an office force to function effectively, routines must be straightened out, duplicate operations must be combined, and unnecessary work must be eliminated. By streamlining procedures, office routines should be keyed to new requirements arising out of increased volume in concrete sales. However, in office work, just because an operation can be performed mechanically, does not mean that is the best way to do it. Machine methods should be adopted only when they are preferable to manual operations. Accounting, calculating, and billing machines should be installed only when a producer is convinced they are necessary to get financial statements and other reports out on time and that definite savings will result. A producer should use good judgment in buying office equipment and should buy only what is necessary.

Every effort should be made to keep office costs in proper proportion to increased expansion of business. If a company is making 10 per cent on its sale dollar, the elimination of one $4000 clerical position means as much to net profits as $40,000 worth of new ready-mixed concrete sales. A producer should be constantly alert to possibilities of office work combinations. Each office activity should be checked to determine if it is being handled in the best possible way, whether it is necessary or can be done less frequently and whether it can be combined with any other activity.

There should be a separation of duties involving financial transactions. This helps both to prevent fraud and uncover mistakes. The man in charge of assets should not be accountable for supervision over records of the assets. When possible, the handling of the general ledger and subsidiary ledgers should be in separate hands; the work of timekeeping and payroll handling should not be under the control of one person. Cash payments, preferably, should not go to the employe supervising the receivable records.

Payroll preparation and disbursement should be in trusted hands. Report times, make-ready work, noon hour activities, job unloading practices, last trip of the day, and washout times must be closely checked to keep delivery costs in line. Weekly payroll ratios should be effectively used to improve performance of drivers and plant men. The efficiency and cost of plant and delivery equipment maintenance should be watched carefully.

For each transaction, there should be a record. Record forms should be numbered serially and a systematic accounting made of their use. For each sale there should be a related order, delivery ticket or tickets, invoice, and posting record. Pickup sales, either cash or charged, should be carefully controlled. There should be no possibility of collusion between employes or between an employe and customers (warning!—watch returned concrete.) Cash should be disbursed only from deposited funds or from a petty cash impressed fund. Again, written evidence should back up each transaction.

The efficient ready-mixed concrete operator provides for proper handling of accounts receivable and credit sales are placed under close control. The receivables system must be fast and accurate. Errors should be practically non-existent. Mistakes made in the company's favor irritate the customer. Mistakes favoring the contractor customer are often not called to the producer's attention.

Customer billing requires continued attention. Billing should be promptly expedited on a day-to-day basis. In no way should this work ever be permitted to lag. When billing falls behind

*Pres., Nicholson Concrete Co., Toledo, Ohio

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A BLAW-KNOX *Hi-Boy* TRUCK MIXER OWNER WRITES:

"Erie Builders' likes the capacity and maneuverability..."

Weight distribution to haul bigger payloads *without exceeding legal axle load limits* . . . compact design to mount on shorter more maneuverable trucks — these are two of the most profitable features of Blaw-Knox Truck Mixers for operators like Howard Doolittle of Erie Builders' Concrete Company of Erie, Pa. The mixers used by Erie Builders' mount on 170½" wheelbase trucks that are 12" shorter than the trucks they mounted their old mixers on. This gives them mixers which mount on more maneuverable trucks that can haul bonus payloads through traffic, onto the job site and up to the forms *faster*.

Dozens of other Blaw-Knox features you will want to investigate include the faster charging, thorough mixing, speedy discharging and simplified water system. Call your Blaw-Knox distributor for complete information.

Central-Mixed Concrete
CONTROLLED QUALITY • SERVICE

ERIE BUILDERS' CONCRETE COMPANY

18TH AND MYRTLE STREETS • PHONE 4-1081
ERIE • PENNSYLVANIA

Blaw-Knox Company
Construction Equipment Division
Mattoon, Illinois

Gentlemen:

You asked us to let you know how we like the two 6½ cubic yard truck mixers you shipped to us in April of this year.

It might interest you to know we purchased your mixers primarily because your district salesman, Mr. Berschger, proved to our satisfaction they could be mounted on the trucks we were using, with a 12" shorter wheel base, without changing the weight distribution between the front and rear axles.

We have the mixers mounted on B42S Mack trucks with 170½" wheel base, and our axle loads are what we figured they would be.

The shorter wheel base enables the drivers to spot the truck quicker, especially in tight places, and they make more trips per day than our other trucks. We batch them with 8¼ cubic yards of premix concrete, which is sometimes 6" slump, but there is no spillage on the road.

The mixers must be well balanced as there is practically no side sway on the road. They charge and discharge fast, and we are very well pleased with their performance.

Yours very truly,
ERIE BUILDERS CONCRETE COMPANY
Howard Doolittle
Howard Doolittle, Manager

50th Anniversary
BLAW-KNOX
1906-1956

BLAW-KNOX COMPANY

Construction Equipment Division
35 Charleston Ave. • Mattoon, Illinois

schedule, collections are delayed, more working capital is required, additional billing errors occur, overtime work becomes necessary, customer relations are adversely affected and financial reports do not cover the current picture. At many efficient ready-mixed concrete operations, today's invoices cover yesterday's deliveries. No operator need settle for less.

Accounts should be posted promptly and reconciliations handled on a current basis. Customer allowances, notes, and write-offs should be carefully journalized.

Receivable payments must be kept in proper balance to charged sales. Slow accounts must be systematically and promptly followed up. Adequate reserves for doubtful accounts must be maintained.

Without good accounting, no ready-mixed concrete company can be operated efficiently. To manage efficiently, a producer must put to work all important information made available by the accountant and other members of the front office staff.

A good accountant digs up the necessary information. Whether his efforts pay off is up to the producer. An efficient operator uses the accountant's figures to determine what it costs to do business; what fixed and variable costs can be reduced and how; what functions and routines must be improved and why; when and how a producer should expand; whether to buy or lease; and what average selling price for concrete is required to give an adequate return on investment and yearly sales.

A well organized accounting system provides adequate, on-time, daily, weekly, monthly, quarterly, or yearly reports. It provides these necessary tools to management swiftly, accurately, and continuously. It gives comparisons with prior year, month, or week records and deviations from planned standards. An efficient accounting system red flags variations from business records which will reflect on expected profits. It focuses a producer's attention on waste, errors, and bad collection practices; it pinpoints strong and weak conditions of the ready-mixed concrete operation.

A ready-mixed concrete producer should not only be making efficient use of general accounting; he should be using its principal "off shoot", Cost Accounting. Intelligent cost planning leads to better quality, improved efficiency, reduced costs, and additional profits.

The average producer is prone to overlook many hidden costs. He fails to charge adequately for special materials (lightweight concrete) and special services (e.g., part-load deliveries). Inventories get out of balance and other factors causing added tax liability are overlooked. The producer may overestimate the importance of volume or fail to consider how quickly a sharply reduced volume or lowered selling price can completely wipe out profits. In his concrete quotation, a producer may not provide for either the effects of overtime or increased labor and material costs. Too much ready mixed concrete, for many reasons, is being handled at no profit or actually at a loss.

As a producer, you should know your costs of doing business. Break down your overhead. Determine what percentage of your cost dollar is going into plant operations, deliveries, administration, sales, and material expense. On these expense items, know your average costs per cubic yard. Realize the meanings of peaks and dips. Understand the effects of overtime work on peak day operations. Realistically face downtime costs. Put your "breakeven" knowledge to work in whipping into line your costs of doing business during off season months. Know these costs as related to the industry average and as compared with your competitors.

In addition to developing a workable cost control and operations program, as well as submitting prompt, accurate financial reports periodically, the accountant helps in the preparation of a workable budget. The budget provides a yardstick to check results against estimates and expectations. The budget develops a proper relationship between expense and income, earmarks money for carefully considered purposes, and restrains unwise expansion programs.

In recent years, alert accountants have been helping ready-mixed concrete producers establish their breakeven points. Today in business, this information is basic to sound planning. To intelligently face the future, the ready-mixed concrete operator should know the point where profits begin. Each operator should know his own breakeven point. He should know how it compares with others in the industry. If possible, he should know how it compares with his competitors. In our industry it is generally considered preferable to put the breakeven point in terms of percentage of the sales volume.

The accountant also helps with the establishment of office routines, the setting up of an adequate filing system, and the selection of a fiscal year which best fits the operating business. Ready-mixed concrete companies in the northern half of the United States probably would find it best to have their business years end around March 31. Fiscal years should end when inventory is at lowest ebb, accounts receivable have been largely collected, and the operation is in best possible taxwise position.

Proper accounting information, together with his own "on the spot" observations, should give an alert producer necessary control over plant processing, maintenance, delivery problems, customer service, office routines, and most important, profit expectancy.

The proper use of adequate information assures the success of any ready-mixed concrete organization.

A producer's front office is functioning efficiently when these essentials are being realized:—(1) proper ordertaking routines; (2) effective control over concrete deliveries; (3) close supervision of customer relations; (4) fast, accurate billing; (5) sound credit program; (6) on time, accurate preparation of tax returns and other required reports; (7) provisions made for a simple, well indexed filing system; (8) an effective system of inventory control; (9) operating costs closely controlled; and (10) careful consideration of proposals that will speed up work, simplify record keeping operations, and afford additional protection.

Office-Facilities, Records, and Personnel

Your company office may be a downtown location, in a neighborhood area, or adjacent to your ready-mixed concrete plant. When possible, a plant location is generally preferred. When so located, in addition to regular front office activities, provision is made for dispatching and timekeeping. The office should be adequate; it need not be pretentious. Our business, fortunately, does not require elaborate office and conference facilities. However, there should be provision for storage space to house office paraphernalia and records that must be preserved.

Generally at a plant office, male help is required. There is too much dust, noise, and vibration for women to be attracted to such positions. Despite conditions that might prevail, the best possible arrangements should be made for office employes. Special consideration should be given to proper lighting, heating, and ventilation.

Lighting conditions should be maintained that are above standard for of-

(Continued on page 220)

Note: In a sincere effort to be of service to its members, the National Ready Mixed Concrete Association, through a joint committee on Cost Accounting, is planning to issue in the near future a cost accounting manual that should help guide many individual producers in establishing effective cost controls over their own operations.

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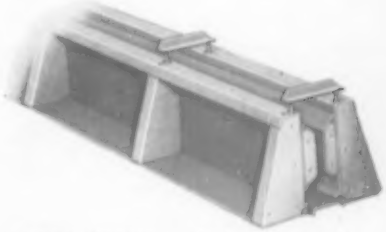
in many sizes WITH A SINGLE 300 to 400-FOOT INSTALLATION OF...

Now-mass production in a big way!

The newest addition to the Form-Crete line (illustrated at the right) has been carefully engineered to provide the utmost flexibility for mass production of all sizes of prestressed bridge beams. Basic forms are designed to produce either I-beams or square beams as desired. Side forms, inserts and pilot liners are fabricated in 10-foot lengths for most efficient casting operations. Specially designed tie bar assemblies (adjustable to 2 or 3 casting positions for required widths) hold top of forms firmly in place for accurate casting. Bottoms of forms are locked to the anchored pilot liners with specially designed lock bars and Panel wedges to provide uniformly smooth prestressed products—send for fully illustrated bulletin today.



I-BEAM FORMS—only four sizes of basic FORM-CRETE I-Beam forms with interchangeable pilot liners and material displacement side inserts will produce 30 different sizes of standard pre-stressed I-Beams.

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FLORIDA DIVISION
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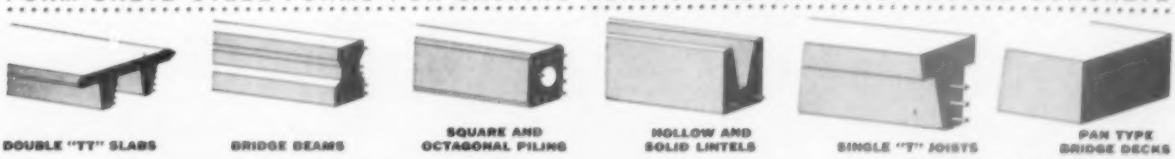
FORM-CRETE STEEL FORMS FOR CASTING REINFORCED OR PRESTRESSED CONCRETE



DOUBLE "TT" SLABS | BRIDGE BEAMS | SQUARE AND OCTAGONAL PILING | HOLLOW AND SOLID LINTELS | SINGLE "T" JOISTS | PAN TYPE BRIDGE DECKS

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Besser 8-Star Promotion of CONCRETE BLOCK

- Concrete Masonry Advertisements in Architectural and Building Publications.
- 28 Page Concrete Masonry Insert in Sweet's Architectural File.
- Permanent Exhibit in National Housing Center, Washington, D. C.
- Permanent Exhibit in Architects' Samples Corporation Building, New York City.
- Exhibit Display Units for Home Shows, Conventions, etc., loaned to block plants.
- Plan Books Illustrating 225 Block Masonry Homes.
- Series of 26 Newspaper Ads to help Sell Concrete Masonry to the big Home Market.
- Cooperative Advertising Material, including Home Builders' Booklet . . . Jumbo post cards in full color . . . Blotters . . . Match Books . . . Bulletins . . . Radio scripts . . . Movie films . . . etc.

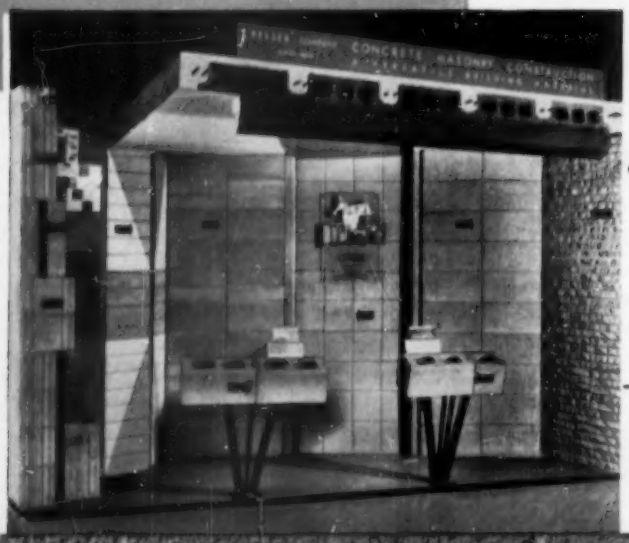
Creates Interest in Concrete Masonry... Stimulates Demand for All Types of Block ...Helps Plants to Sell More Units

You not only want to *produce* block... you want to *sell* block. The Besser Company helps you to do BOTH!

Through the medium of architectural and building publications, radio, newspapers, exhibits and a great variety of promotional material, the Besser Company is carrying the torch for the Block Industry. We are sincerely striving to get Mr. Public sold on the merits of Concrete Masonry.

Besser provides the world's leading machine for making block, plus the necessary "tools" for selling the block. This twofold program results in a solid foundation for progress for all VIBRAPAC Block Plants.

A portion of the Besser Company's permanent exhibit at the National Housing Center, Washington, D. C. Shows many new and interesting concrete masonry wall patterns.



Besser Exhibit at the Architects' Samples Corporation, New York City. Presented to the Architectural Profession by the Besser Company to suggest design in concrete masonry.

A 8927-1PBC

BESSER COMPANY

World's Leading Manufacturer of Concrete Block Machinery

ALPENA, MICHIGAN, U. S. A.

You have more salesmen for *CONCRETE MASONRY* than you think

On many construction jobs—whether homes, farm buildings, stores or factories—decisions about building materials are made before plans are drawn. These decisions may come when prospects (1) discuss loans with bankers or savings and loan officials, (2) purchase land from realtors or (3) read building news in local papers.

The men who influence these decisions—bankers, realtors and editors—can serve their customers effectively only when they know all the facts. It will pay you to keep them informed about the many advantages of concrete masonry construction. Furnish local editors with items and pictures of building projects using your block.

Such merchandising stimulates extra sales. Other ways to build business include: (1) making block that complies with ASTM and Federal specifications for moisture content, strength and water absorption, (2) keeping a list of quality concrete masonry buildings in your community from which you can select examples to show prospects and (3) furnishing prospects with names of architects and builders who have established a reputation for designing and building quality concrete masonry structures.

PORTLAND CEMENT ASSOCIATION

33 W. Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete...through scientific research and engineering field work

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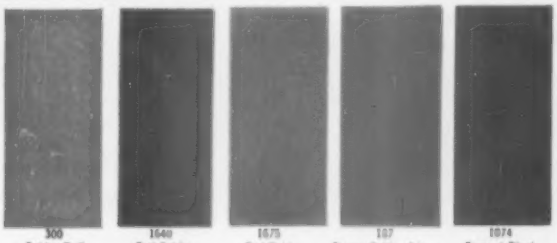

A guide for choosing concrete colors

For producers of split blocks, patio blocks, concrete blocks and other colored concrete products.

Manufacturers of colored concrete products agree . . . *The pigments they use must have these 3 important qualities:*

1. A high degree of tinting strength when added to the mix
2. Color uniformity year in, year out
3. The ability to incorporate easily

Manufacturers also require a pigments supplier whose technical department is capable and cooperative, whose shipping service is prompt and dependable.

Point for point, REICHARD-COULSTON quality-controlled pigments and dependable service meet *all* these requirements!

The shades shown above are just 5 of the many concrete colors manufactured by REICHARD-COULSTON. Included are yellows, buffs, maroons, grays, reds.

For a free color card, fill in and mail the coupon. Act now.

GENERAL RECOMMENDATIONS: PASTELS (*Split blocks and similar products*), 2-4 lbs. for each bag of cement. DEEP SHADES (*Patio blocks, concrete blocks, etc.*), 6-8 lbs. for each bag of cement.

Reichard-Coulston, Inc.

15 EAST 26th STREET, NEW YORK 10, N. Y.

Warehouses in principal cities; factory: Bethlehem, Pa.
Over a century of manufacturing and service

Natural IRON OXIDE PIGMENTS *Synthetic*

REICHARD-COULSTON, Inc.
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CP-126

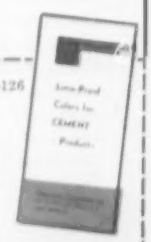
Gentlemen: Please send me a free card of REICHARD-COULSTON concrete colors.

My name_____ Title_____

Company_____

Address_____

City_____ Zone____ State_____



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FRONT OFFICE

(Continued from page 216)

fice work. The office should be kept at a temperature of approximately 70 deg. the year around. In our industry, we are generally busy during the summer. Open windows produce too much dust and too little relief from the heat. Air-conditioning is necessary equipment in our accounting offices.

As adequately as possible, the office should be arranged to attain a smooth flow of work. Desks of employes who are doing related work (not financial) or who should be in close communication with one another should be placed together. As regards front office personnel, private offices should be used only to avoid distraction to other employes. Conference facilities that permit private conversations between management and customers or suppliers should be provided. In addition to proper placing of employes, necessary fidelity protection should be secured to safeguard the producer against frauds, thefts, and other losses.

The office force should be made up of a small number of efficient, high caliber employes. Where an office force is sufficiently large to require an office manager, the ready-mixed concrete producer should not merely create a title; he should place responsibility.

Office employes of the ready-mixed concrete industry are expected to work long overtime hours during peak building months. In most sections of the United States, comparably speaking, ready-mixed concrete drivers and other operating employes are paid fairly high wages. Office people quickly become informed as to weekly wages earned by plant men and drivers. Obviously, unless their own weekly earnings compare favorably with wages of operating personnel, office employes will soon become dissatisfied.

At our Toledo offices, all employes, except one, are male. All regular male employes are paid a high enough weekly salary that we don't have to worry about wage and hour provisions. This means that our people are doing all right as compared with office personnel in other industries. When the unions get increases for plant men and drivers, we make it a point to grant proportionate salary increases to our office personnel. We believe that this thinking has paid off. We know no better way to maintain high morale.

Earlier in this chapter it has been stated that every producer should take a good look at presently used company forms and at the filing system.

All forms should be well spaced, provide adequate margin for binding, and be of the right size for both handling and filing. Through better design of regularly used forms, a great deal of paper work can be eliminated. Forms are being properly designed when they accomplish their purpose with the amount of required writing being held to a minimum. Several specific examples can be cited:—Through the development of an efficient delivery ticket in which boxes are provided for checking desired information, much unnecessary writing can be eliminated. As an aid to efficient handling and to prevent error, cash sales should be handled on delivery tickets of a different color than those used on charged sales. If several plants are being operated, different colored delivery tickets should be used for each operation.

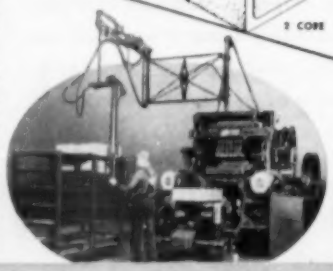
All presently used forms should be carefully studied. Poorly designed forms should be replaced; unnecessary forms should be discontinued. A periodic checking will help to keep this problem in hand. Some producers try to cover every situation with some kind of form. Unquestionably, there are producers who are actually "form happy". By keeping copies of all forms in one place and regularly reviewing the lot of them, a producer can help

Concrete Filler Block for *Fire-Safe* FLOORS and ROOFS

Why make only the walls of a new building fire-safe and permanent? Why not also apply these practical advantages to the floors and roofs? Concrete Filler Block, produced on a Besser Vibrapac, make it possible for the ENTIRE structure to be fire-safe and permanent . . . at LOW COST.

ALL made on a BESSER VIBRAPAC

Concrete Filler Block are made on a Besser Vibrapac . . . the same dependable machine that produces high quality concrete load bearing block for walls. And the same Plain Pallets are used. All types of filler block can be made in various sizes to coordinate with other modular materials and for all load conditions. Block plant operators can materially add to their profits by supplying their customers with BOTH wall and floor units. For further facts, contact your nearby Besser representative, or write:



Vibrapacs are versatile. They make ALL types and sizes of block on ONE set of Plain Pallets. Fully automatic. Off-bearer removes finished block with power hoist. No manual lifting.

BESSER COMPANY • Complete Equipment for Concrete Block Plants • Alpena, Michigan, U. S. A.

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TYPICAL GENERAL ELECTRIC AUTHORIZED SERVICE STATION is Lane's 2-Way Radio Service in New London, Conn. Owner Al Lane has been in electronics service for over 30 years—now provides maintenance for more than 200 customers' mobile units.

MOBILE TWO-WAY RADIO SERVICE SHOP, completely equipped, that Lane uses for fast, efficient servicing on two-way systems. Lane's preventive maintenance program includes monthly checks on all mobile and base station units—of all makes.

KEEP TWO-WAY RADIO SYSTEMS AT TOP EFFICIENCY WITH GENERAL ELECTRIC AUTHORIZED SERVICE

General Electric Authorized Service Stations are independent local businessmen, factory-trained to maintain your two-way radio system's full-time operating efficiency at the lowest possible cost.

Whether you now operate a two-way radio system, or are contemplating the installation of one, it will pay you to investigate the prompt, thorough and economical servicing programs offered by more than 500 General Electric Authorized Service Stations throughout the nation.

Like any investment, a communications system requires planned management to yield a satisfactory return. Such return on your two-way radio system requires planned *maintenance*. General Electric's Authorized Service Stations use experts, factory-trained to provide service that protects your investment by preventing loss of communication.

Licensed Experts. To be franchised as a General Electric Authorized Service Station, an independent operator must be fully licensed by the Federal Communications Commission to perform checks and maintenance on radio communication equipment. He must have the highest reputation in the community for fair dealing and good workmanship, and must carry adequate stocks of factory parts to assure quick repairs in emergencies.

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Once franchised, General Electric Authorized Service Stations are enrolled in a continuing program of service training. In addition to factory-training sessions, all stations are regularly supplied with latest maintenance instruction manuals, bulletins, and hints on servicing all makes of two-way radio equipment. Also, General Electric employs highly skilled Communications Engineers in major cities, experts who are immediately available to any independent Authorized Service Station, or customer, for consultation on any communication problem.

FOR SALES AND SERVICE see "Radio Communication Equipment" in your Yellow Pages. Or, write: *General Electric Co., Communication Equipment, Section X45126, Electronics Park, Syracuse, N. Y.* In Canada, write: *C.G. E. Electronics, 181 Lansdowne Ave., Toronto.*

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GENERAL ELECTRIC

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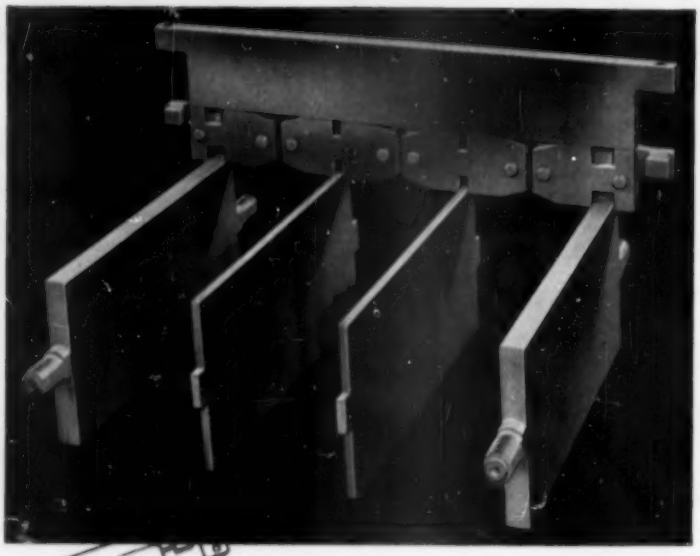
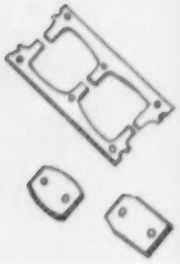
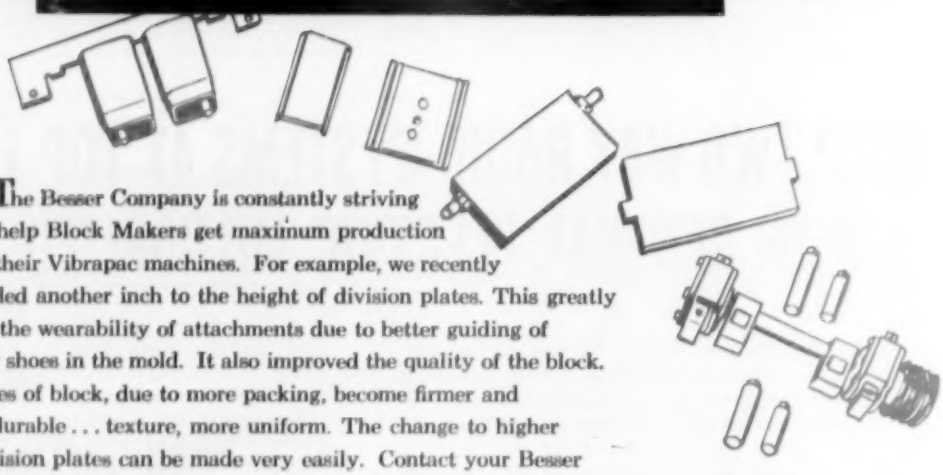
New Higher Division Plates
Step Up Quality and Production!



VIBRAPACS
Run Smoother
with
Genuine
BESSER PARTS



PART NUMBERS
Outside Division Plates
No. 55312
Inside Division Plates
No. 58980
Cut-off Bar
No. 57768
Outside Cut-off Shoes
No. 57769
Inside Cut-off Shoes
No. 57770



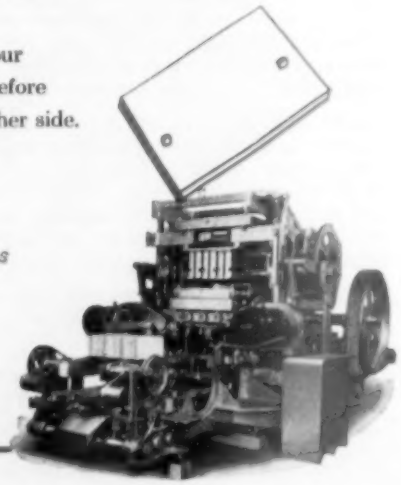
The Besser Company is constantly striving to help Block Makers get maximum production from their Vibrapac machines. For example, we recently added another inch to the height of division plates. This greatly increased the wearability of attachments due to better guiding of stripper shoes in the mold. It also improved the quality of the block. Edges of block, due to more packing, become firmer and more durable . . . texture, more uniform. The change to higher division plates can be made very easily. Contact your Besser representative for details.

Tip to Block Makers — You can get double duty from your cut-off shoes if you change from one edge to the other. Before wearing ⅛" on one side, turn cut-off shoe over and use the other side.

BESSER Company

BOX 135, ALPENA, MICHIGAN, U.S.A.

Complete Equipment for Concrete Block Plants



BESSER Genuine PARTS

GENUINE VIBRAPAC PARTS
ARE MADE ONLY BY BESSER

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FRONT OFFICE

(Continued from page 220)

himself to maintain a proper perspective.

In checking your own company's business forms, ask yourself these questions:— Are all the forms essential? How can these forms be improved? Can any of them be eliminated? Are efforts being duplicated? Are some forms wasting more time than the record is worth? Can some forms be used more efficiently? Can a combination of forms be made? Can any personnel be saved by a more efficient use of better designed accounting forms.

Records should be kept up-to-date and accurate. All records, reports, and other forms should be used advantageously or abandoned. A producer should preserve necessary records to defend the company against litigation, claims, and disputes. Reports in which the government might be interested should be kept the required number of years. All records should be preserved that will be helpful in retaining valuable operational lessons or in developing new operating policies.

To develop an efficient record keeping system, the top executive must set the policy, determine how long and where different records shall be kept, enlist the full cooperation of office personnel, appoint a key employe to develop the filing system, and support the new appointee as certain members of the office personnel attempt to resist changes in filing procedures or other routines.

To start an efficient filing system, a complete physical inventory is the only sound procedure for deciding which papers are to be thrown out and how long, as well as where, to keep the rest. Every retained record should be counted, classified, and indexed as to location. An index of inventory cards should contain all pertinent information on the records to be kept. The new filing system should provide a check to determine frequency of reference to particular files. Such checking assures that storage facilities are used to best advantage. Even cheap storage space should be periodically cleaned of dead material.

Because of prohibitive cost, microfilm has not been widely used in record keeping systems of the ready-mixed concrete industry. Another observation is that few producers have distinguished themselves for good record keeping. Many producers start filing systems; few keep them up. It takes active personnel cooperation, a persistent filing system supervisor, and an insistent top executive to keep a filing system operating efficiently.

Typical AiroViber vibrator installation to keep bulk materials moving.

Low Cost AiroViber Speeds Movement of Bulk Materials by Trouble-Free Vibration

Operates quietly, effectively in wide range of temperatures; requires no maintenance

TROUBLE-FREE external vibration for effective movement of bulk materials in loading, unloading, moving, packaging, processing, grading or separating is now available to you in the low cost AiroViber vibrator. Simple design of AiroViber involves only one moving part and ends necessity of down time for periodic maintenance or lubrication. It also includes a noise reducing design that eliminates annoyance of sounds often experienced in ordinary types of vibrators.

AiroViber's one-moving-part construction assures you of continual operation in wide range of temperatures. It will also start and operate at all times and is not affected by humidity.

AiroViber's simple design assures trouble-free vibration.

How It Operates

Vibration necessary to keep materials from jamming, arching or hanging up in bins, hoppers, chutes, feeders . . . is created by the AiroViber vibrator through action of a single heavy steel ball blown by compressed air around a hardened and ground steel track in the housing. A strong centrifugal force developed by the weight of the ball is then transmitted by the vibrator through its mounting into the object being vibrated.

Installation Is Easy

Because of its simplified design, AiroViber may be installed quickly and easily. And, since no upkeep is required, you can install this vibrator in hard-to-get-at locations . . . fully confident that it will operate for a long time without lubrication or maintenance. Special line oilers or air filters are not needed . . . merely hook up an air hose large enough to deliver air specified for the unit you select.

Find out how AiroViber vibrators can save you money and time in moving bulk materials. For free illustrated literature and address of nearest distributor, write Viber Company, 726 South Flower St., Burbank, Calif., Dept. 11C12.

VIBER

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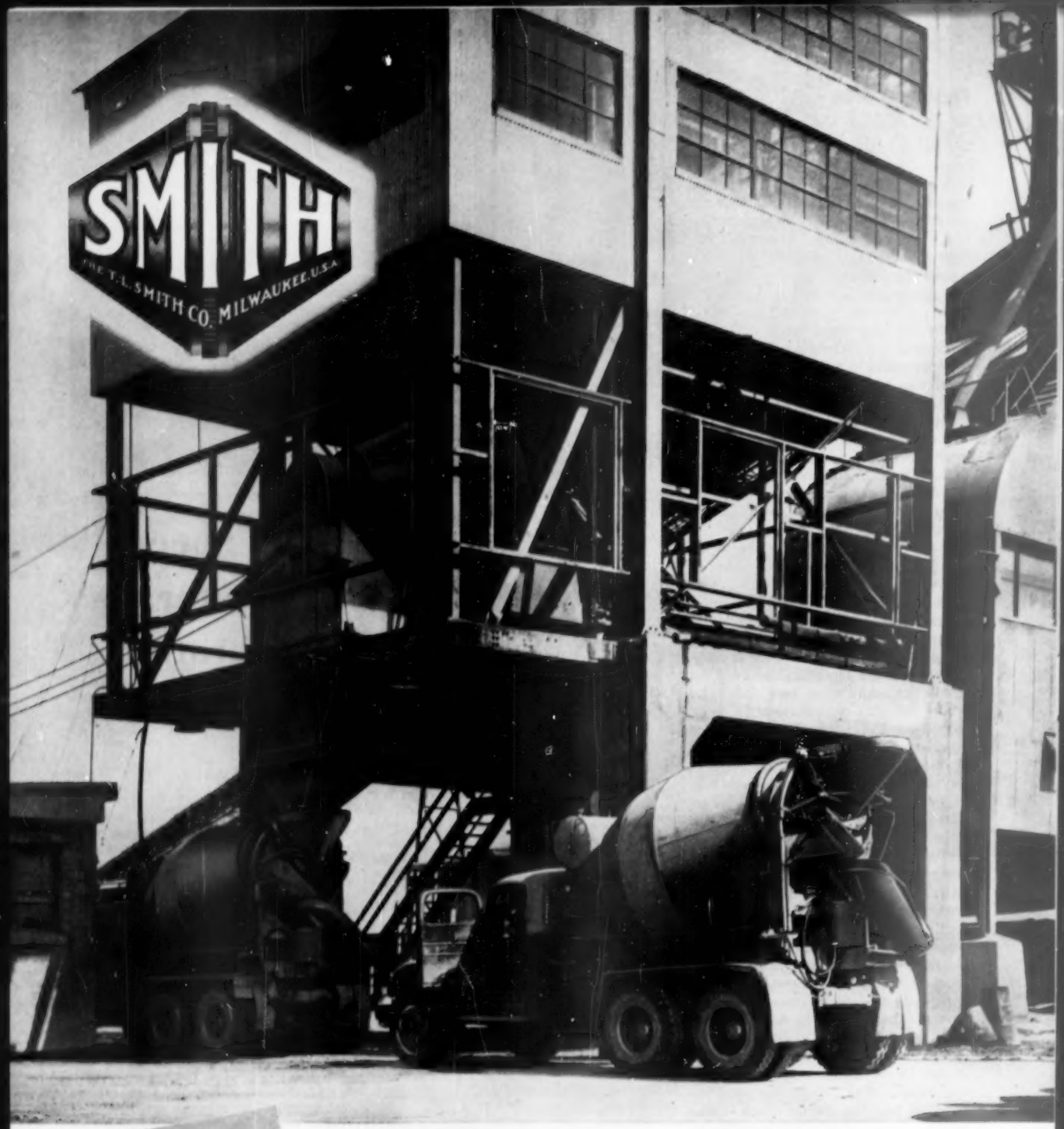

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"Quality Concrete" becomes more than a slogan when you use Smith Tilters and Smith Agitators. *BOTH* these machines are designed to give you the best mix. You can premix or shrinkmix in a Smith Tilter in a fraction of the time needed by any other plant mixer. Your Smith Agitators haul full-rated loads, without a door. ● Smith Tilters are made in seven sizes — 1, 2, 3, 4, 5, 6 and 7½ yards; each guaranteed to mix 10 per cent overloads. ● Smith Agitators come in six sizes — 5, 6¼, 7½, 9, 10¼ and 11½ yards; each conforms to the Truck Mixer Manufacturers Bureau standards in every way. ● Contact your nearby Smith distributor for literature.

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Affiliated with Essick Manufacturing Company, Los Angeles, California

BUILDERS OF BETTER MIXERS FOR MORE THAN 55 YEARS

INSULATED KILNS

(Continued from page 210)

of 850 lb. per hr. For the uninsulated kiln it required 3½ hr. to get the temperature up to 170 deg. F. The insulated kiln required only 1½ hr. to reach 145 deg. F. It is not necessary to bring block temperature in the insulated kiln to 170 deg. F., because the lower heat loss gives less temperature fall, and the total areas remain the same.

At 850 lb. of steam for 1½ hr., the total is 1275 lb. of steam; with 850 lb. of steam per hr. for 3½ hr., there is a total of 2975 lb. of steam. So the actual percentage of steam required in a well-insulated kiln is slightly more than 40 percent of that required in the ordinary type of kiln.

Since the temperature rise need only be 145 deg. instead of 170 deg., still less steam is required to bring the inside of the kiln and its load of block, racks and pallets up to 145 deg. instead of 170 deg. Total block load and the kiln enclosing walls, roof and floor slabs require less heat to produce equivalent curing and hydration reaction.

Block are not heated above 145 deg. in the insulated kilns. Therefore there is not the same danger involved as when block are heated to 170 deg. F. This higher temperature is not bad, but it is often possible through inadvertence to have the heat rise higher than 170 deg. which is always apt to harm the block.

The block from the uninsulated kilns leave at 92 deg., whereas from the insulated kilns they leave at 122 deg. This higher temperature causes a more rapid dispersal of moisture from the block which will reach a state of moisture equilibrium more rapidly. This, of course, is desirable.

A check among users of insulated kilns shows that fuel consumption ranges about 7 to 8 gal. of fuel oil per thousand 8-in. units. With oil at 13¢ per gal., the cost per 1000 would be $0.91 to $1.04. For uninsulated kilns, fuel consumption per 1000 8-in. units ranges about 20 gal. per 1000, or, with oil at 13¢ per gal., $2.60 for curing. A general survey throughout the industry shows that the figure of $2.60 holds true for well-managed plants. There are many plants where fuel costs per 1000 8-in. units were as high as $8.00, but in general they would run from $2.50 to $5.00. Insulated kilns will reduce these costs.

The cost of insulated kilns is the same as ordinary kilns plus the cost of insulation and the labor of putting it in place. In some areas insulation is quite inexpensive. Actually for a 6000 8-in. production per day per kiln, the extra cost might run from $1000 to $1500.

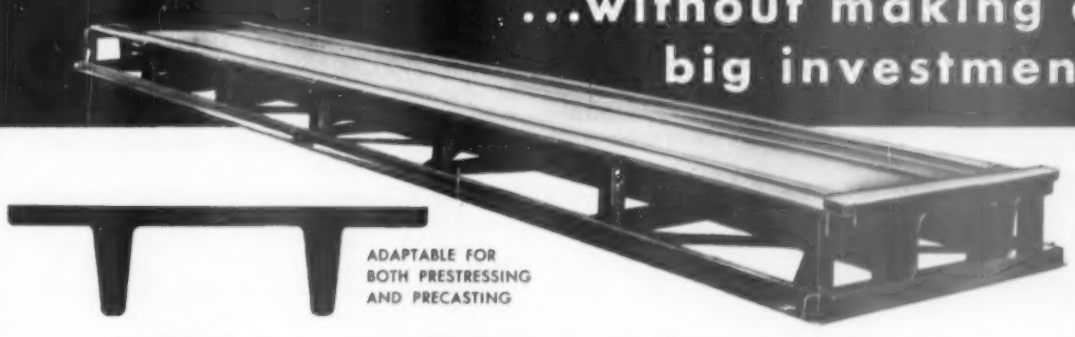
With insulated kilns, the steam plant need be only half the capacity of that ordinarily required. Thus for a new plant, the saving in the cost of the steam making equipment would entirely offset the extra cost of insulated kilns, there would be no additional first cost, and there would still be a saving in fuel operation. For an average size block plant (6000/24 hr.) savings in fuel would range from $2000 to $2400 per year. This is a substantial saving when it is considered that the total charges generally are not more than $4000.

The increasing number of high pressure installations make it incumbent on the ordinary block manufacturer to improve his curing, and to put himself in a position to offer block of less than 30 percent relative moisture.

•

NORTHERN OHIO CEMENT PRODUCTS Co., Flat Rock, Ohio, has been established by Thomas Billiard, president of Northern Ohio Stone Co. The new plant, now under construction, will produce ready-mixed concrete.

Get Into Profitable Precast Business ...without making a big investment



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It's not necessary to invest money in concrete beds, expensive equipment and plant facilities to manufacture prestressed double tee slabs. A big sales potential is for span ranges of 20 to 40 feet, for which prestressing is not needed—for which precast members are most advantageous.

Low-cost, portable Atlas Cambered Steel Forms enable you to quickly and simply precast your slabs with lightweight concrete. A small investment puts you in a business with a tremendous market.

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WESTERN PIPE MEETING

THE 1956 FALL MEETING of the Western Concrete Pipe Association was held at the Utah Hotel, Salt Lake City, Utah on October 24-26, 1956. The meeting was well attended with ten western states having representation. H. W. Chutter, president of the Association, presided at the opening session. Brief reports were made by Mr. Chutter and Ephraim Dyer, Jr., field engineer for the Western Concrete Pipe Association.

The width of loads that could be carried by trucks came up for review. In some of the western states, loads up to 9 ft. wide can be carried, but permits usually are required. California practice was discussed, with divergent viewpoints as to some details: Wider than 8-ft. loads can be carried with permit if there is no other way to load the pipe. Wider than 8-ft. loads cannot be carried on Saturdays, Sundays or holidays, or on foggy days. Some mention was made as to how to distinguish fog from smog. In one section of the state, the permit to carry a wide load was limited to 50 miles. In others, longer hauls with wide loads can be made.

The subject of industrial wastes with emphasis on cannery waste and its effect on pipe was reviewed.

Highlight of the first day's session was the talk by Thomas K. Breitfuss, assistant to managing director, American Concrete Pipe Association, Chicago, Ill. Mr. Breitfuss briefly reviewed the forthcoming highway program and some of its favorable effects on concrete pipe sales. He discussed tests underway that will clinch the fact that smaller diameter concrete pipe can be used, compared to corrugated metal, because of the superior flow characteristics of concrete pipe. The difference in flow of cast vs. tamped pipe is so small that for culvert work the differences cannot be measured, the speaker pointed out. Transite pipe and its use as a competitor to concrete was reviewed. The trend in the concrete pipe industry is towards making longer lengths, a wider use of rubber-coupled pipe, and stronger pipe, he said. Sewer, culvert and storm drain pipe, and discussions on A.S.T.M. specifications and proposed changes in reinforced pipe were handled in an open-type forum session for the remainder of the program. The previous morning session can be reviewed as follows:

H. W. Chutter told of a camera that had been used in the Fresno, Calif., area for photographing the interior of a sewer pipe so as to determine its condition. Henry Weigand, Concrete Conduit Co., brought out that in Los Angeles a company had been formed that would do this type of work on a fee basis.

During discussion on pipe corrosion in sewer installations, it was brought out that Long Beach, Calif. engineering department used a sewer-pipe cleaning system. Modern disposal units used in homes has presented problems.

The first speaker on the final day of the meeting was Lester C. Lowhorn, Irrigation Engineer, Soil Conservation Services, U. S. Department of Agriculture, Fort Worth, Texas. Mr. Lowhorn said that conservation of soil was tied directly to water (irrigation, drainage and H_20 conservation).

William Lerch, Head, Performance Test Groups, Research and Development Division, Portland Cement Association, Skokie, Ill., discussed "Applied Uses of Different Types of Cements to Concrete Pipe." Mr. Lerch brought out that, by using larger amounts of normal cements that are more easily available, pipe often could be made that would compare favorably with concrete pipe made from the more expensive (and often not available) sulphate-resisting and other special types of cement.

The closing speakers for the meeting were Roy W. McLeese, City Engi-

(Continued on page 232)

Front view showing operator feeding block into BES-STONE Block Splitter.

Make this your BEST year with the BES-STONE Block Splitter

Expand Your Opportunities — Cash in on the Split Block demand. Its "quarried stone" character pleases owners. You'll find it ideal for all structures, large or small . . . commercial, institutional or home construction. BES-STONE challenges the creative ability of both architects and builders.

BES-STONE Splitters — Automatic, powerful, hydraulic operation . . . up to 960 Split Block per hour. Straight line cuts . . . No cull block. Easily adjustable for splitting various block heights. Block is placed under knife, automatically. And the finished Split Block is automatically removed from under the splitting knife by the incoming block. Quiet, safe operation.

PONY BLOCK TRIMMER

Indispensable tool on the job. Trims off the end of any block up to 8" by hand operated, hydraulic pump. Capacity 12 tons. Legs easily removable. Compact. Lightweight. Easily portable.

Fast, Accurate

Profitable Producer of 960 Split Block per Hour!

There's big money for you in attractive, permanently colorful BES-STONE Split Block. It complements and increases sales of standard stripper block. Get all the facts. Write for BES-STONE Bulletins 95A and 100.

Note the natural beauty of BES-STONE. No maintenance, no painting, no peeling off.

BES-STONE *the Split Block with Character*

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for silent monitoring of Civil Defense alerts!

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RECEIVER
RCA Conelrad Receiver $115*
complete and ready to use
Rules and regulations of the FCC require every station in the Amateur, Standard Broadcasting, Public Safety, Special Industrial and Land Transportation Radio Services to observe all Conelrad radio alerts.

In buying equipment for Civil Defense monitoring purposes, you will want to have the most foolproof equipment. RCA's Type CR-17A Conelrad Receiver offers the following noteworthy features:

1. *Silent*, annoyance-free monitoring plus provision for audible monitoring and external alarm.
2. Automatic switching to preset Conelrad frequency in event of an alert.
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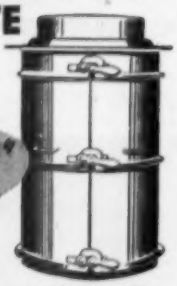

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Backed by over 45 years of reliable service, the QUINN Heavy Duty form is recognized as the STANDARD design and the finest concrete pipe form everywhere. Used in making pipe by vibration, spading or tamping. Sizes for pipe from 10" to 120" and larger. Tongue and groove (as shown) or bell end pipe in any length desired. If your pipe orders specify extra large sizes, odd shapes or unusual lengths, there's a Quinn form made to produce the finest pipe at lowest possible cost.

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QUINN CONCRETE PIPE MACHINES

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Illustrates our complete line of equipment. Contains pages of valuable tips for the concrete pipe manufacturer. Write today for your free copy and estimates.

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Save up to $3,000 on one of our unused Army trucks. See for yourself how TWO of our trucks cost you even LESS than *one* new truck.

Compare our Tandem Axle Trucks with front wheel drive, 10 forward speeds, overdrive and new mud and snow tires with similar equipment elsewhere.

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766 S. THIRD ST. MEMPHIS, TENN.
CONSTRUCTION AND AUTOMOTIVE EQUIPMENT AND PARTS.

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ELECTRONIC BATCHING

(Continued from page 200)

Equipment for the automatic dispensing of three liquid type admixes is provided in the control panel. The automatic timers on the panel are interlocked with pump and metering equipment to tie these operations in with the batch sequence. Flow indicators are installed on the panel to provide positive check on liquid flow through charging lines.

Heart of the plant is the 6 cu. yd. Burmeister tilting mixer. When the weighing operations have proceeded in sequence to the end point, the mixer is ready to be charged. With the drum revolving and in the charging position, the batch water is started into the mixer. The sand and coarse aggregate are then charged together with the cement being ribboned in after about one third of the total aggregates have been charged. All materials in both cement and aggregate batchers must be in the mixer and the scales returned to a zero balance before the charging gates to the mixer can be closed.

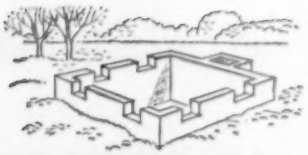
The mixer cannot be discharged until the complete batch has been charged, the charging gates closed and the predetermined mixing cycle completed. The progress of the mixing operation is followed by the operator by watching the slump indicator on the control panel. This instrument, which follows one of the accepted approaches to slump control in plant mixing, reads electric current input to one of the mixer drive motors. For a given mix design and batch size, relationships are established graphically between this current reading and the slump of the concrete at the completion of the mix cycle. Accuracy obtained on continuous production of concrete to a specification eliminates the necessity for retempering adjustments subsequent to mixing. This factor and its effect on concrete quality, the firm feels, justify the increased original cost of this type concrete producing operation.

The mixer is equipped with an air-operated revolving splash plate at the front end of the drum. This plate, revamped by one of the plant personnel from its earlier form, confines the dust and splash during charging and still leaves this end of the mixer clear for observation during its discharge operation.

All concrete is currently transported from plant to job site in Jaeger truck mixers operating at rated agitator capacities.

The control panel was designed and

(Continued on page 230)



EFCO FORMS
for house foundations

EFCO Steel Forms for concrete construction are adaptable to wide use by their owners, including construction of house foundations. Other advantages:

- Lifetime steel faces should never need to be replaced.
- Easy to handle and assemble.
- Saves time, material, money.
- Low original cost.

Other forms from Economy are available on a rental basis. Write nearest office for catalog.

Economy Forms Corp.
DES MOINES, IOWA

Offices in St. Louis, Mo.; Kansas City, Mo.; Lincoln, Nebr.; Minneapolis, Minn.; Ft. Wayne, Ind.; Milwaukee, Wis.; Chicago, Ill.; Cincinnati, Ohio; Cleveland, Ohio; Metuchen, N. J.; Rochester, N. Y.; Springfield, Mass.; Washington, D. C.; Decatur, Ga.; Charlotte, N. C.; Dallas, Texas; Tulsa, Okla.; Houston, Texas; Los Angeles, Cal.; Oakland, Cal.; Denver, Colo.

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"FEATURE FOR FEATURE YOUR BEST BUY, BY FAR, IS THE ROCKET REVOLVING DRUM TRUCK MIXER"

That's what ready-mix operators are saying about Rocket truck mixers, available in 3, 3½, 4½, 5½ and 6½ yard models. All designed to give you maximum performance and economical operation. Write for complete information.

CONCRETE TRANSPORT MIXER CO.
4985 Fyler Avenue
St. Louis 9, Missouri

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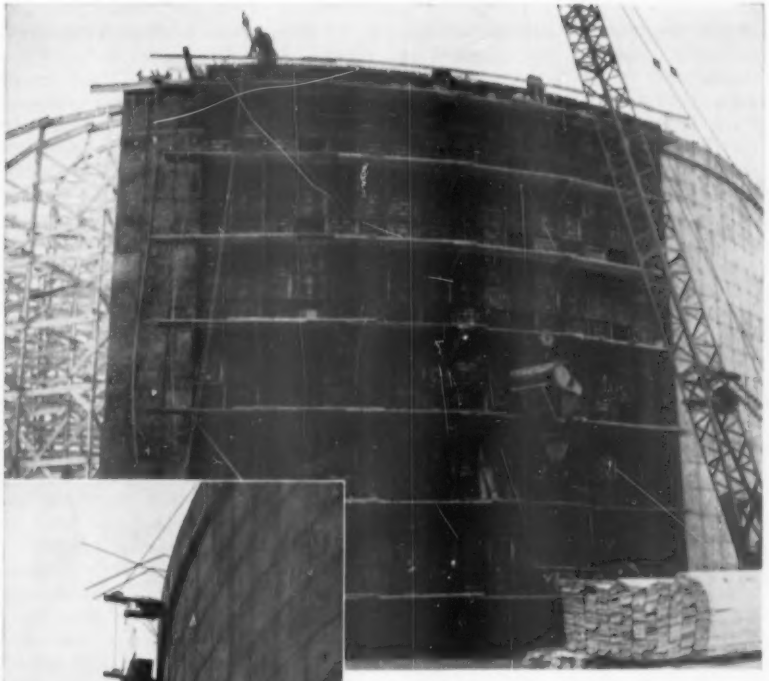

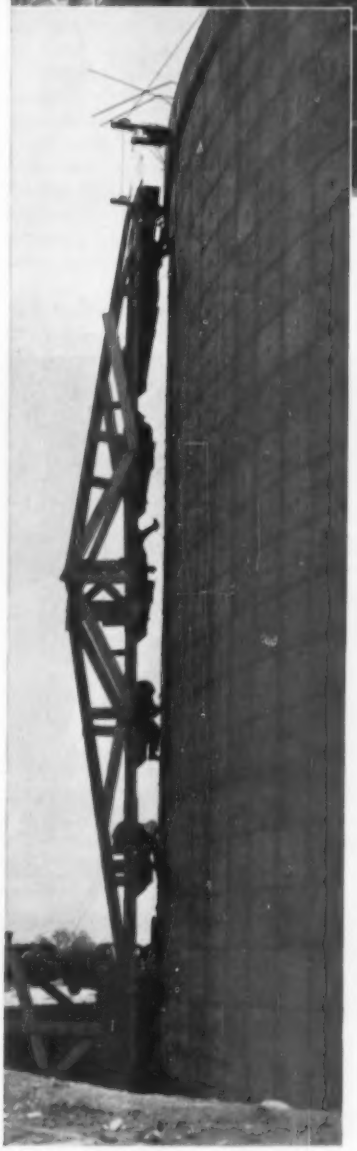

NO HORIZONTAL JOINTS. 30" sq. steel form pans were set to full height in segments of 1/9 of wall. Omitting pans left pouring windows, easily closed when concrete level reached them. Preload Construction Corp., N. Y., contractor.

Construction Methods Photos

WIRES WOUND 40 STRANDS PER FT. and, at the base, several layers deep, carry 105,000 psi working circumferential stress. Layers were grout bonded and sealed. Previously, vertical prestressing of 140,000 psi was done by wires placed before pouring.

CONTINUOUS POUR of 125' dia. foundations and floors (540 cu. yds. per tank) avoided joints.

5 MEN ON ROLLING TRUSS removed form ties before prestressing operation.

17" thin concrete, prestressed both ways,

walls 5 million gallon tanks

TWO TANKS, each 125' in diameter with a liquid depth of 54', were built for Philadelphia Suburban Water Co., North Wayne, Pa., with an estimated saving of 300,000 lbs. of reinforcing steel. With both vertical and circumferential prestressing, instead of heavy reinforced construction, walls are only 17" thick, domed with 2½" thick concrete air-placed around wire mesh.

The workable high strength concrete needed (a mix of 5½" slump developing 5400 psi in 28 days) was processed and delivered on carefully set schedule by truck mixers of certified design, capacity, mixing speed and accuracy of water control.

You have a right to insist on this Rating Plate. It certifies compliance with the high industry standards maintained for your protection by the Truck Mixer Manufacturers Bureau.

BLAW-KNOX CONSTRUCTION EQUIPMENT DIV.
Mattoon, Ill.
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THE JAEGER MACHINE COMPANY
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THE T. L. SMITH COMPANY
Milwaukee, Wis.
WILLARD CONCRETE MACHINERY CO., LTD.
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WORTHINGTON CORPORATION
Plainfield, N. J.

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built by the Gemco Electric Company of Detroit, builders of many of the new automation installations for the automotive industry. The underlying objective in the panel design was to provide a controlled sequence operation with interlocks to provide maximum protection against errors common to this type of operation. Visual signals provide the operator with check points on the console.

Plant erection was begun in January of this year and the first concrete produced in April. Nearly 500 cu. yd. of concrete were required for plant foundations due to the soil conditions at the site on the Detroit River. The four (4) compartment aggregate bin, which weighed approximately 40,000 lb., was assembled upside down on the ground, then rolled over and raised into position on the previously erected support columns.

The cement bins were similarily assembled with stub legs attached. Matching columns were erected, the bins set down on the columns and fastened together with splice plates. These design and erection innovations greatly facilitated erection under difficult winter weather conditions.

The entire plant was designed and built by the L. Burmeister Company of Milwaukee, Wisconsin. Plant enclosure framework, including window and door openings, was included in Burmeister's phase of the job. Mr. John Burke of the Detroit firm of Cyril J. Burke, Inc., was consultant for the Winkworth organization, and contributed materially to the successful erection and completion of the entire installation. The Burke firm are distributors in Detroit and Eastern Michigan for the Burmeister Co.

The plant enclosure and adjacent boiler house facilities are constructed entirely of corrugated aluminum on steel framing, concrete and concrete products.

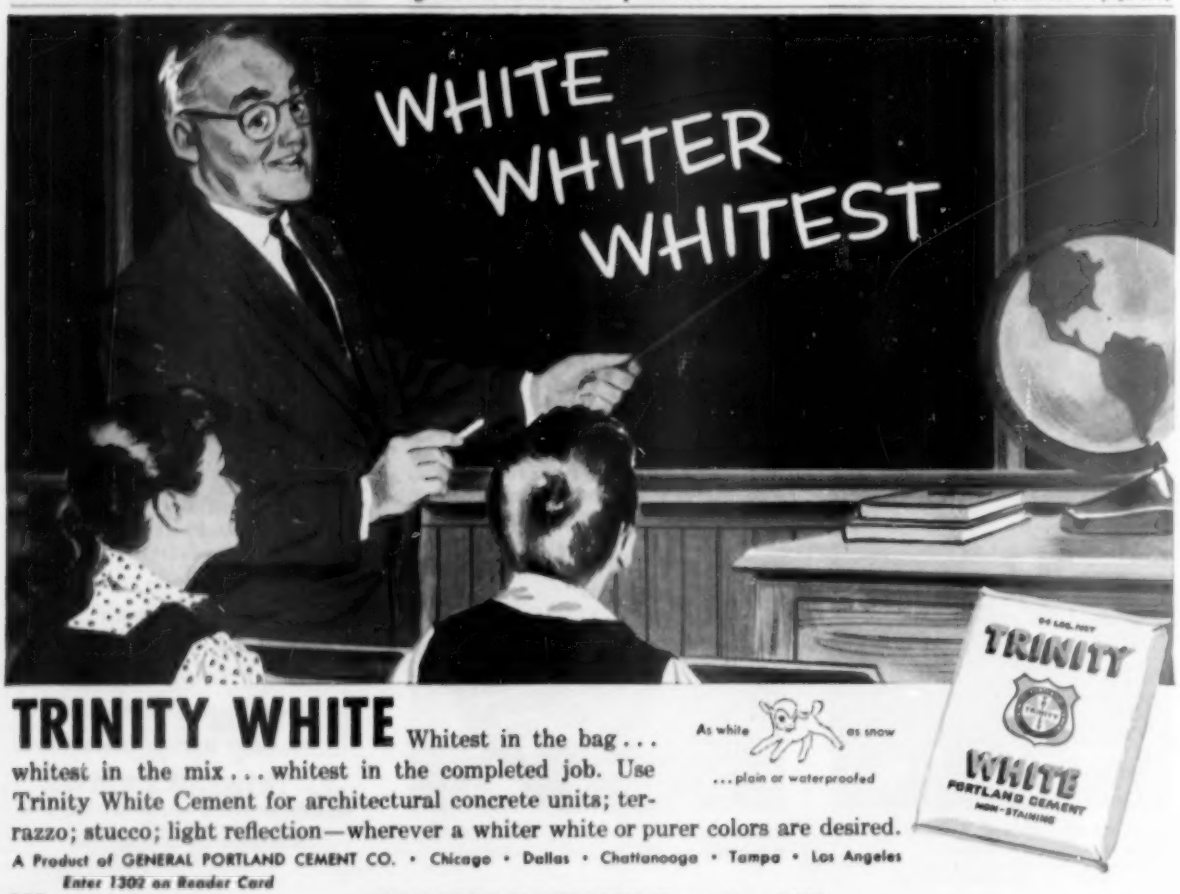
Quality concrete, Winkworth believes, is the end product of carefully selected materials, a controlled mixing operation, efficient delivery and constant testing and inspection. A concrete technician directs all sampling and testing of concrete and aggregates. The firm's River Rouge, West Side and East Side plants are each equipped with facilities for field testing. The company plans in the very near future to follow the lead of many of the nation's progressive ready mix operations and establish a central laboratory with adequate equipment to conduct a very rigid quality control program on its concrete production.

Currently a set of three compression molds are made on all daily orders of 50 cu. yd. or more. These molds may at the direction of the customer be turned over to an independent laboratory for testing. Specimens are held in one of Winkworth's two moist curing rooms for a period of 40 days at the disposal of the contractor or architect from whose jobs the concrete was sampled. Many specimens are forwarded by the Winkworth technician to establish levels of uniformity or give him a check on a specific job. During 1955 over 500 such specimens were sent to the laboratories for 28-day compression results on concrete placements. All work performed by the quality control division of the operation is available to interested parties. Metal molds of the type manufactured by the Heekin Can Co., are used exclusively for test specimens.

Winkworth's continuing program for quality control and product improvement has served to keep company personnel conscious of the value of specification concrete. This in-built enthusiasm for quality is transmitted to purchasers of ready-mixed concrete, so that the effect is low-pressure salesmanship at its best.

Founded in 1915 as a builders sup-

(Continued on page 232)



TRINITY WHITE Whitest in the bag . . . whitest in the mix . . . whitest in the completed job. Use Trinity White Cement for architectural concrete units; terrazzo; stucco; light reflection—wherever a whiter white or purer colors are desired.

As white as snow

. . . plain or waterproofed

A Product of GENERAL PORTLAND CEMENT CO. • Chicago • Dallas • Chattanooga • Tampa • Los Angeles

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Contractor customers request SIDE-O-MATIC delivery. Driver alone, can make eight deliveries a day, sets block cubes in cellar around excavation—saving contractor's time, too!

"...THE SIDE-O-MATIC FITS INTO ANY MAN'S FLEET, WHO PRODUCES AND DELIVERS BLOCKS TO SATISFY HIS CUSTOMERS"...

Fizzano Brothers
Crum Lynne, Pennsylvania

DON'T TAKE OUR WORD FOR THE SIDE-O-MATIC – THESE ARE THE THINGS OUR CUSTOMERS ARE SAYING ABOUT THE PATENTED SIDE-O-MATIC UNLOADER: (Patent Nos. 2,772,794 and 2,772,795)

Investigate—Compare they said . . . and we looked at them all . . . in the future, when we buy again, we will surely get another Side-O-Matic.

"This unloader has first proved to be a great time and labor saver. In an 8-hour work day we have made as many as eight deliveries . . . been able to unload . . . where a roll-off type truck would be impractical."

City Cement Block Company
Bridgeport, Connecticut

"We find the Side-O-Matic has many advantages. You can put block down in the average foundation setting any one single cube wherever the contractor may want it. We have realized quite a savings in block handling . . . hauling 720-8" units on our White tandem . . . impressed by fine appearance."

Hitterhouse Concrete Products
Chambersburg, Pennsylvania

"Our Side-O-Matic is working out, we are very well pleased with the job it is doing. We feel it easily replaces 2 to 3 semi-trucks . . . customers have purchased blocks here because we have a Side-O-Matic Unloader to put the blocks in the basement . . . means better service at less cost."

Allen County Concrete Products, Inc.
Lima, Ohio

" . . . we know we made the best choice. Especially from the contractors' viewpoint and every other customer of ours . . . we are able to place our block, and brick, where they are wanted, at the handiest place for the customers without moving the block as you would have to do if a whole load of 800 block would be dumped on one place . . ."

Adolf Jandris and Sons, Inc.
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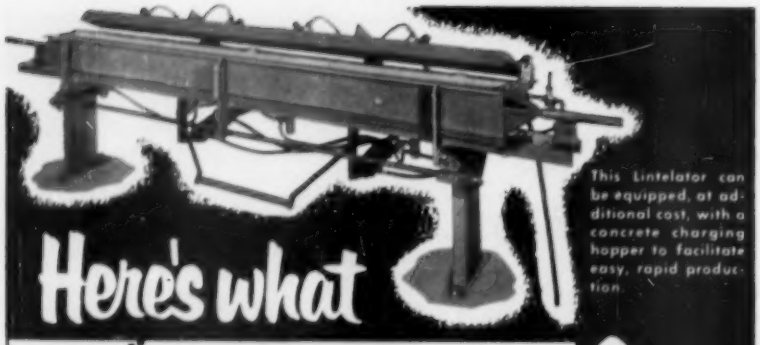

This Lintelator can be equipped, at additional cost, with a concrete charging hopper to facilitate easy, rapid production.

Here's what

VIRGINIA DUNBRIK COMPANY
INCORPORATED

MANUFACTURERS OF THE LYNCHBURG BLOCK AND CONCRETE ARTS

April 3, 1956

The Kent Machine Company
Cuyahoga Falls, Ohio

Attention: Mr. Daniel Urban

Dear Sir:

Many thanks for the helpful service rendered by the Kent representative, Mr. Carl Worrell.

It might be worth something to someone to know our experience with our Kent Lintelator. First during this companys twenty years in business we have been making only block, concrete-type brick and lintels. About three years ago we were forced to improve our lintel operation and came upon the Kent Lintelator.

Now after three years of continuous operation we give you one reason why you cannot get it back. One operator alone mixes and makes more than fifty lintels in an eight hour day on our Lintelator. These are better lintels - both true and good texture. This Kent Lintelator has practically no maintenance and our operator would never consent to reverting back to the old method of making lintels.

Needless to add, the Virginia Dunbrik Co., Inc. has found the Kent Lintelator a very good and most profitable addition giving us a stock of lintels to meet the demand.

In appreciation you may use this company as a reference and invite your prospects to visit here and see and talk with the Lintelator operator.

Very truly yours,

VIRGINIA DUNBRIK CO., INC.

A. Kendall Sydnor
Sec., Treas.

Says about their KENT LINTELATOR

BETTER LINTELS... TRUE & GOOD TEXTURE

PRACTICALLY NO MAINTENANCE

WOULD NEVER CONSENT TO REVERTING BACK TO OLD METHOD OF MAKING LINTELS

A VERY GOOD AND MOST PROFITABLE ADDITION TO MEET THE DEMAND FOR LINTELS

INVITE YOUR PROSPECTS TO VISIT HERE AND TALK WITH THE LINTELATOR OPERATOR

You, too, can profit by the experience of Virginia Dunbrick Company.

A glance at their statement above is convincing proof that a Kent Lintelator is a definite money producing asset in any block plant today. Some plants have several in operation every working day.

You'll doubtless find a worthwhile market for lintels through the customers you are now selling.

Act now when the opportunity is "ripe" and ask us for the complete, interesting "Lintelator" story.

The KENT MACHINE CO. CUYAHOGA FALLS OHIO
DIVISION OF THE LAMSON & SESSIONS CO.
CONCRETE PRODUCTS MACHINERY SINCE 1925
Canadian Distributor: Wettlaufer Equipment, Ltd., 49 Merton St., Toronto 12, Ontario

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ply company, Winkworth Fuel & Supply Co. produced its first ready-mixed concrete in 1945 by dry batching. The first central-mix plant was built in the spring of 1954 to produce concrete for a large power plant project.

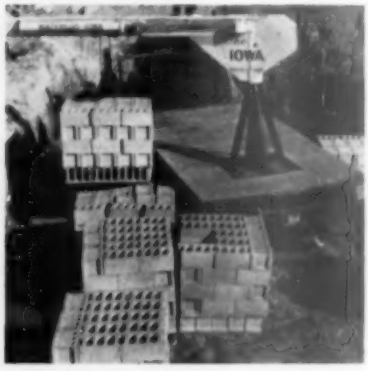
With the great increase in building activity stimulated by Detroit's Civic Center Development, the proposed medical and housing development and the vast expressway program, it was felt that the company should erect a plant at a site from which these programs could be serviced. The quality and production standards achieved with the River Rouge central-mix plant convinced the firm management that the new plant should be of the same basic design with automatic controls.

WESTERN PIPE MEETING

(Continued from page 226)

neer, Salt Lake City, who spoke on "Concrete Pipe in Salt Lake City," and Ralph Spears who built his talk around a sound movie developed by Iowa State College on the "Bedding and Backfilling of pipe."

The annual Spring meeting of the Western Concrete Pipe Association will be held at the Fresno Hacienda Motel, Fresno, Calif., April 18-19, 1957.



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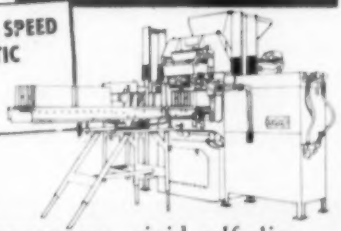

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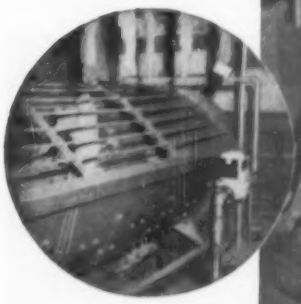

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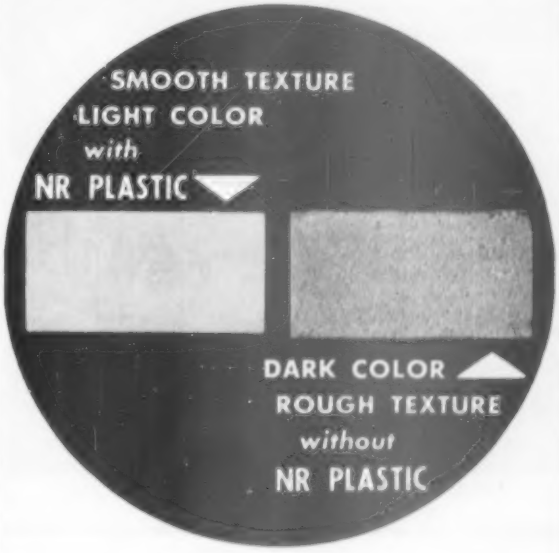

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- √ Heavy Aluminum Sheets on Both Sides of Thick Vaper Proofed Insulation.
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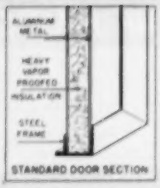

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- NOT HIGH FREE LIFT—but in most cases it takes the place of HFL and, at much lower cost.
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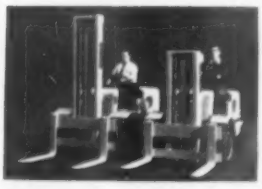
- AVAILABLE NOW—on all Truck-Man indoor and yard high lift models.

COMPARE DOWN HEIGHTS!



For 144" lift; conventional mast (left) has down height of 92" vs. only 72" for Multi-Lift mast (right). For 120" lift, conventional mast has down height of 83" vs. 62" for Multi-Lift.

Write today for your copy of the folder describing the revolutionary new Multi-Lift mast.

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Stearns #7 & 9 Jolterettes (Jolterette owners at this price buy one for spare parts.)	$500.00 each
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Firm Name _____
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City _____ State _____

CP-12-56

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TO LOAD . . . UNLOAD

CONCRETE BLOCK . . . BRICK . . . CEMENT . . . STONE . . . ETC.

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TWO MODELS—TWO CAPACITIES—TWO OVERHEAD CLEARANCES

	MODEL E 6	MODEL E 7
	Handles 180—42 lb. blocks 7560 lbs.	Handles 210—42 lb. blocks 8820 lbs.
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Overall Clearance from truck bed	76"	84"
Inside Loading Area	50"—Clears 6 rows, 8" block	59"—Clears 7 rows, 8" block
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Overall Clearance from truck bed	78"	86"
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(Patented)

ALL PARTS, BOTH MODELS, STANDARD ITEMS; EASILY REPLACED IF DAMAGED.

For details and prices, write

ELBERFELD MANUFACTURING CO., INC. **ELBERFELD, INDIANA, U.S.A.**

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Lith-I-Block Machine

. . . . ITS OWN BEST SALESMAN!

John Holtrop, Pres.
Holtrop Concrete Products, Inc.
Ferrysburg, Mich.

TELEPHONE 6888

HOLTROP CONCRETE PRODUCTS, INC.
FERRYSBURG, MICHIGAN

October 3, 1956

Lith-I-Bar Company
345 W. 11th St.
Holland, Mich.

Gentlemen:

We installed our first Lith-I-Block machine over five years ago and found the answer to our production problems. Our first machine, a two-blocker, was soon found to be too small, so in 1953 we installed the larger machine.

We find no difficulty in exceeding the rated capacity of the machine and it will do it hour after hour. The blocks have a uniform texture which is proof of even and proper vibration. The lightweight unit made on this machine is a beauty.

Our contractor customers actually compliment us on the square corners and clean sharp edges. Our repair cost and down time have never been as low.

Our association with the Lith-I-Bar Company has been very pleasant, from top management to sales and service departments. When problems do arise they go all out to do everything in their power to insure customer satisfaction- and we are one satisfied customer.

Very truly yours,

HOLTROP CONCRETE PRODUCTS

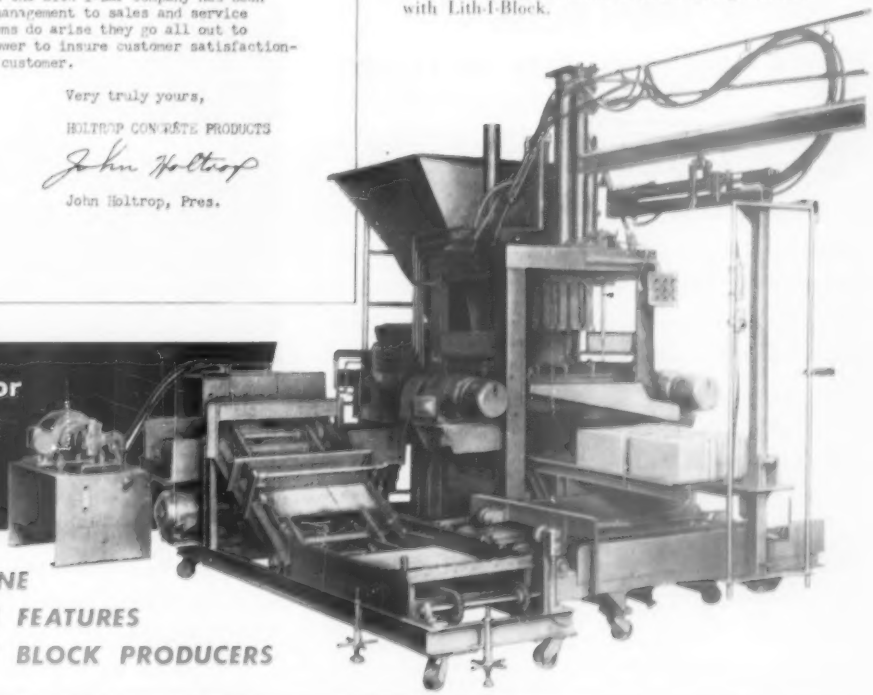
John Holtrop

John Holtrop, Pres.

LITH I-BAR COMPANY RECEIVED OCT 5 1956

SEE IT IN ACTION — AND PROVE IT TO YOURSELF!

Lith-I-Block Machines have what it takes to make their users enthusiastic, as indicated by Mr. Holtrop's letter. They like the reserve speed, which gives them the leeway to exceed the rated capacity. They appreciate the careful engineering which has gone into the machines, which cuts down repairs and saves them money on down-time. They are "high" on the special features, such as the exclusive Four-Point Automatic Height Control, the Quick-Change Mold Box, and the many other proven advantages of this advanced volume producer of bonus-quality block. And they all speak about the way the Company backs them up with Service. So, — why don't you check with the Lith-I-Block producer, and learn first-hand why you, too, will profit most by joining the ranks of those who go farther with Lith-I-Block.



HYDRAULIC or AIR POWERED 2 or 3 BLOCK MODELS

THE BLOCK MACHINE WITH THE PROVEN FEATURES MOST WANTED BY BLOCK PRODUCERS

SALES AND SERVICE THE WORLD OVER

LITH-I-BAR COMPANY

HOLLAND · MICHIGAN

ONE PIECE OF EQUIPMENT OR A COMPLETE PLANT LAYOUT

LITH-I-BAR CO. HOLLAND, MICH.

Send me latest bulletins on Lith-I-Block Machine.

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY & STATE _____

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STOP SHARING YOUR PROFITS WITH A SLOW CYCLING BLOCK MACHINE!

IN YOUR PLANS FOR '57... *remember!*

YOU CAN PRODUCE BETTER BLOCK...

FASTER...FOR LESS...WITH THE STEARNS

ELECTROMATIC

PRODUCTION and PROFITS go hand in hand, and for that EXTRA PRODUCTION, remember, one extra machine cycle per minute amounts to over 1,400 –8" x 8" x 16", or equivalent, block per eight hour day... over 28,000 EXTRA blocks per month! The final answer is very simple . . . EXTRA blocks MEAN extra profits! Blocks that are unexcelled in quality... yet, with unparalleled machine production.

Customer reports substantiate these facts and figures, with many types of aggregates.

If you haven't seen the ELECTROMATIC in operation, by all means do so, for proof of performance. Compare the high production and superior block quality with that of your present machine. We are sure your plans for '57, and a more profitable future, will include a new ELECTROMATIC.

Contact us today for the installation nearest you.

Be sure **To visit Stearns booth**
Concrete Industries Exposition
Kiel Auditorium, St. Louis, Mo.
February 25-28

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MANUFACTURING COMPANY · INC.

ADRIAN, MICHIGAN, U.S.A.

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DREDGING PUMPS

performance-proven on the toughest jobs

H&B ESTABLISHED 1887

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Write for Bulletin DP-147.

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GRIZZLY FEEDER takes the heaviest shock loads. For Portable and Stationary Plants. Feeds only crushable material, secondary material and fines are by-passed, eliminates needless crushing. No increase in head room. Feeder widths 24" to 60". Heavy steel chain links and cross bars (openings between bars can be varied). Feeder bars in a continuous traveling chain with ample open area. Operates horizontally or at angles of 15° to 18°. Double and triple reduction countershafts with final drive through gears insure full power to head shaft. Low power, from 5 to 7½ H. P., 15 H. P. on larger sizes. REQUEST PRICE and RECOMMENDATIONS.

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Over 55% of Charles E. Wood Company business has resulted from sales of Auto-Vortex Classifiers as *replacement or auxiliary* equipment to help other classifying systems do the job *they were meant to do but have failed to do.* 100 % of these Auto-Vortex "emergency" installations have proved their unequalled ability to make sharp splits and to recover fine sand from large volumes of water at low cost. These facts strongly suggest that the sand operators who discovered Auto-Vortex Classifiers *on the second guess* would be money ahead if they had installed a complete Auto-Vortex Plant in the first place. A call or letter to the Charles E. Wood Company, 906 North Water Street, Milwaukee 2, Wisconsin, is your perfect start toward doing it right the first time!

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Write us today for prices and illustrated literature. Order Balls direct or see your nearest Equipment Dealer.

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Pear shape (lbs.)	1500	2000	3300	4000	5200	6500	8000
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PLATE FASTENERS FOR CONVEYOR BELTS

Make strong dust-tight, water-tight joints in belts of any width. Special design spreads tension uniformly across belt, allow natural troughing of belt and assures smooth operation over flat, crowned or take-up pulleys. Sizes for belts of from 1/4" to 1 1/2" thickness. *Write for Catalog Sheet.*

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Rehandling • Wide Rehandling
General Purpose • Hard Digging • Dredging

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It describes the bucket to fit every job. To select the proper size, weight, and type bucket for the most efficient and profitable use of your crane requires the service of a competent distributor's or manufacturer's sales engineer. See your nearest BLAW-KNOX DISTRIBUTOR.

BLAW-KNOX COMPANY
BLAW-KNOX EQUIPMENT DIVISION
Pittsburg 38, Pa. Offices in Principal Cities

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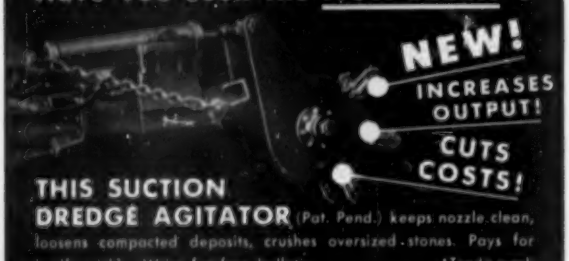

THIS SUCTION DREDGE AGITATOR (Pat. Pend.) keeps nozzle clean, loosens compacted deposits, crushes oversized stones. Pays for itself quickly. Write for free bulletin. *Trade mark

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Elsewhere in this issue is a special card to make it easy to subscribe for a friend or employee. Why not pass along the card to people you think should be reading **ROCK PRODUCTS** every month.

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CLAM SHELL • ELECTRIC • ORANGE PEEL • GRAPPLES

famous for performance since 1888

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EXPLORATION FOR MINERAL DEPOSITS
INCLUDING URANIUM & LIMESTONE — ANYWHERE

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Skilled crews and complete stock of core drills and accessory equipment maintained at all times

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Contract Core Drill Division
MICHIGAN CITY, INDIANA

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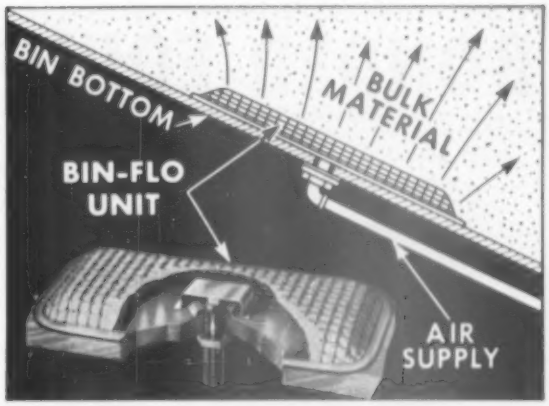

BIN-FLO USES SMALL VOLUME OF AIR AT LOW PRESSURE

KEEPS BULK MATERIALS MOVING

BIN-FLO units in bins, chutes, hoppers, etc., restore flow characteristics to dry, finely ground materials which tend to pack or bridge in storage. Types for all materials and conditions. No moving parts; simple installation; negligible operating cost; no maintenance cost.

BIN-DICATOR bin level indicator—"The Eyes of the Bin"—automatically reports levels of materials in storage; automatically controls filling machines; prevents waste.

THE BIN-DICATOR CO.
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FOR SALE OR RENT

65 ton Whitcomb Diesel Electric Loco.
45 ton General Electric Diesel Elec. Loco.
10 ton Plymouth Diesel Loco. New 1950.
Christian 2D Hoist & Swinger, 138 HP Buda Diesel Engine. 15,000# SLP.
2 100 HP Lucey Portable Horiz. Fire-Box Boilers. 200 lbs. Oil Fired. ASME.
30 ton Wiley Stiffleg Derrick. 80' Boom
1700 CFM Joy Elec. Air Compressor New 1954.
600 CFM 1-R Gyroflo Diesel Compressors
4 yd. P&H 1055 Dragline new 1950.

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Available throughout the U.S.—Items you need may be available near you. Your inquiries would be appreciated.

Buildings	Derricks	Loaders	Pavers
Bins	Draglines	Locomotives	Rollers
Barges	Ditchers	Mixers	Rail
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Cars	Excavators	Pulverizers	Shovels
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Conveyors	Graders	Pumps	Tractors
Crushers	Generators		Trailers
Dryers	Hoists		Etc., Etc.
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(I can sell your surplus equipment)

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MARIETTA, KANSAS

JAW CRUSHERS

60"x48" to 6"x3"

New and used RELIABLE

"Farrel-Bacon" Jaw Crushers

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26 Park St., Montclair, N. J.
29 Washington Ave., Hamden, Conn.

EQUIPMENT LOCATED IN ALL PARTS OF THE COUNTRY

CRUSHERS: jaw, cone, gyratory, roll, hammermill, Rod, ball & tube mills. Screening, washing & crushing plants. Screw, rake and bowl classifiers. Compressors. Conveyors. Blast hole drills. Dump cars. Engines. Feeders. Generators. Hoist. Kilns and Dryers. Locomotives. Motors. Pumps. Pipe. Screens. Shovels & Draglines. Trucks. Transformers. Weightometers.
3' & 4' Symons. 20" Sup. McCully gyratory. 2042 Pioneer primary. Pennsylvania SXC 1358 & SXC 100 hammermills. 12' x 17' Bradford breaker. 5030 New Holland. Impactor. 42" conveyor. 1300 cfm PEE-2 compressor. Ingersoll Rand QM-2 Quarrymaster drill. 4-tube modern valve packing machine. **LOCOMOTIVES:** 125 ton diesel-electric. 8 ton 36" ga. trolley. 20 ton diesel std. ga. **CARS:** 8 ton Granby type tram 36" ga. 71 cu. ft. 24" ga. gable bottom tram. **HOISTS:** 8gl. drum A-C 800 hp, 1000 fpm, skip 9000#, ore 17920#, rope 3440#, 8gl. drum Sullivan 400 hp, 16, 135# pull, 800 fpm. Dbl. drum 40,000# pull at 500 fpm.

STANLEY B. TROYER EQUIPMENT CO.
Box 97, Crosby, Minnesota—Phone 500

One mile of 42" **CONVEYOR** complete, also 20"x200' **DRYERS:** 4½x40, 5½x30, 5½x40, 6x80, 10x101 150 ton Flory 2 drum, 3 drum Amer. **HOISTS** 25 ton MM Crash, Lorain MC414 **CRANES**
CRUSHERS: 440, 1020, 1040, 1524, 1836, 2036 2436, 2540, 4836, 4042, 4248, 8466, JAW, #19 37½ Kennedy 16" 20" 30" 36" McCully, Traylor 2'4" GYR. 7 & 3' CONES.
PLANTS: AWBL Pittmaster. Pioneer 205W
3', 9' & 14' Air **SEPARATORS**
Cat D8800, D13000, D17000, GMC260 **DIESELS**
MILLS: 4½ x 16" 6 x 22" 7 x 22" 6 x 30" Ball 4x15, 6x14 Rod. 5½x22 Tube. 4248 Williams, Dixie 3036, 4224 Jeffrey, CR4033, 2032 Hammer.
APRON FEEDERS: 42"x12, 42"x16, 48"x14, 54"x16
WASHERS: Eagle 14"x14', 14"x12', 20"x18', 7x30.
SHOVELS & DRAG: Bucyrus 10B, 38B, NW7, 25. P&H 1055 Marion 372, 111m490, 7200, Lima 1201 Monighan 9W

Repos: Bonded Scale and Machine Co.

Mid-Continent Equipment Co., Inc.
5321 Gannon Wydown 1-2826 St. Louis 24, Mo.

FOR SALE

1 Drill. Blast Hole. #44 Loomis Machine Co. #14517. Crawler Mounted. 20 H.P. 3/60/440 Motor, Wire Line, Steel Frame and Mast with Tools, 4½" Stem and Parts.

2 Locomotives, 8 & 12 Ton. 36" Ga. Plymouth Gasoline.

2 Hammer Mills, 24" x 24" Eagle Crusher Co.

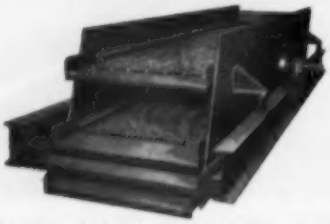
For further information contact J. H. Clements

BASIC INCORPORATED
Maple Grove, Ohio Post Office, Fostoria, Ohio

BONDED EQUIPMENT BARGAINS

IMMEDIATE SHIPMENT FROM OUR FACTORY — WRITE, WIRE OR PHONE

NEW BONDED® HEAVY DUTY VIBRATING SCREENS



Model Number	Screening Area	No. of Decks	Sale Price
124AS	2' x 4'	1	$ 443
224AS	2' x 4'	2	472
126AS	2' x 6'	1	472
226AS	2' x 6'	2	501
136AS	3' x 6'	1	581
236AS	3' x 6'	2	688
336AS	3' x 6'	3	956
138AS	3' x 8'	1	675
238AS	3' x 8'	2	815
338AS	3' x 8'	3	996
138BS	3' x 8'	1	1231
238BS	3' x 8'	2	1282
338BS	3' x 8'	3	1375
248BS	4' x 8'	2	1865
348BS	4' x 8'	3	2035
2410BS	4' x 10'	2	1953
3410BS	4' x 10'	3	2305
3412BS	4' x 12'	3	2635

NEW BONDED® GENERAL DUTY VIBRATING SCREENS

For mineral, chemical and other industrial products. **Fast, efficient and economical for cleaning, sizing, grading, dewatering.** Made in all metals including stainless steel. Enclosed models for hot materials or dust control. Bonded screens are built for any screening operation, wet or dry. HEAVY DUTY MODELS, TYPE BS: 4-bearing positive throw, eccentric shaft; 3' x 8' to 5' x 14', 1 to 5 decks. GENERAL DUTY SCREENS, TYPE AS: eccentric weight mechanism, spring mounted, 1 to 3 decks, 2' x 4' to 3' x 8'. **Write for new 8-page Bulletins 1086 and 1087.**

NEW BONDED® TROUGHING IDLER CONVEYOR BARGAINS

Complete Ready-Fab sections quickly and easily joined together on the job. We take our loss on our stock of short length belting. You can save as much as 50% on the BONDED CONVEYOR SPECIALS listed, with conveyor belting in two pieces. Conveyors are equipped with 5" roll diam. idlers and return rolls, 20" diam. head pulley and 16" diam. tail pulley mounted on 2 1/4" or 2-7/16" diam. shaft. Belt is new 4-ply, 28-oz. duck, 1/8" top rubber cover x 1/32" bottom cover and is fresh stock made by leading manufacturers.

Remember, You Save Up To 50%

CONVEYOR PRICES INCLUDE BELTING

Belt Width	Length of Conveyor	List Price	Sale Price
14"	25'	$1397	$ 722
14"	50'	2222	1144
14"	85'	3377	1733
16"	20'	1262	636
16"	45'	2137	1088
16"	60'	2662	1359
16"	90'	3712	1900
18"	25'	1477	794
18"	45'	2217	1166
18"	70'	3142	1648
18"	85'	3697	1933
18"	100'	4252	2220
18"	130'	5362	2797
20"	25'	1517	826
20"	60'	2882	1533
20"	75'	3467	1836
20"	90'	4052	2145
24"	25'	1590	898
24"	45'	2430	1330
24"	70'	3486	1875
24"	100'	4740	2514
24"	120'	5580	2950
24"	150'	6840	3603
30"	50'	2911	1617
30"	70'	3871	2119
30"	90'	4831	2614
36"	25'	1818	1118
36"	45'	2858	1678
36"	60'	3638	2096
36"	100'	5718	3214

For conveyors longer or shorter than those listed above, add or deduct the following per foot prices according to belt width. Prices include belting.

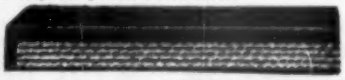
For 14" belt	$16.84 per foot
For 16" belt	18.04 per foot
For 18" belt	19.24 per foot
For 20" belt	20.37 per foot
For 24" belt	21.78 per foot
For 30" belt	24.75 per foot
For 36" belt	27.95 per foot

Write For Bulletin #1138

NEW CONVEYOR BELTING

SAVE UP TO 25%

Heavy duty 4-ply 28 oz. duck, 1/8" top rubber cover x 1/32" bottom cover, 12# to 15# average friction pull, 800# to 1000# average cover tensile, rubber belting having high tensile strength, tough cotton duck, strong carcass and proper flexibility. For heavy boxes, bags and bulk materials. Troughs easily. Famous brands at deep cut prices. Fresh stock.



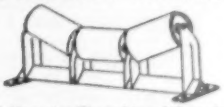
Width	Ply	List Price	Sale Price
14"	4	$3.43 foot	$2.75 foot
16"	4	3.86 foot	2.88 foot
18"	4	4.27 foot	3.19 foot
20"	4	4.69 foot	3.69 foot
24"	4	5.55 foot	4.14 foot
30"	4	6.77 foot	5.06 foot
36"	4	8.01 foot	6.00 foot

A high grade of heavy duty 4 and 5-ply, 28 oz. duck, 1/8" top rubber cover x 1/32" bottom rubber cover, 16# to 19# average friction pull, 2500# to 3000# average cover tensile belting. This belt is for more severe service, high tonnages and abrasion resistance. For handling stone, mineral ores, concrete, cement, coal and other similar materials, both wet and dry. Belt has molded rubber edge.

Width	Ply	List Price	Sale Price
16"	4	$4.59 foot	$3.36 foot
18"	4	5.09 foot	3.72 foot
20"	4	5.57 foot	4.24 foot
24"	4	6.56 foot	4.80 foot
30"	4	8.05 foot	5.89 foot
24"	5	7.68 foot	5.61 foot

Other widths, plies, duck weights and cover thicknesses. Available at low prices. Write for Free Sample.

NEW IDLERS AND RETURN ROLLS 25% BELOW LIST PRICE



3-roll, 5" diameter Troughing Idlers for:

14" belt	$18.50	24" belt	$21.25
16" belt	19.25	30" belt	22.00
18" belt	20.50	36" belt	22.75
20" belt	20.75	48" belt	25.50

1-roll, 5" diameter Return Idlers for:

14" belt	$7.25	24" belt	$ 8.50
16" belt	7.50	30" belt	9.50
18" belt	8.00	36" belt	10.00
20" belt	8.25	48" belt	11.50

All steel. Interchangeable with other well-known makes. Furnished with easily replaceable pre-lubricated Sealed ball bearings. Also can be furnished with greasable type Alemite Fitted bearings at slight additional cost. Maintenance is negligible. Bonded Rubber Disc Impact Idlers Priced from $61.00. Write For Bulletin #1138.

NEW BONDED® FEEDERS

For high tonnage and controlled feed of Aggregate, Sand, Gravel, Crushed Stone, Clay products, Metallic Ores, Coal, Cinders and almost any other bulk material to Crushers, Screens, Conveyors, Mills and other process machinery. Feeder may also be driven from tail shaft of Bonded ® Troughing Idler Conveyors, thus eliminating the necessity of two motors. Capacities to 225 tons per hour. Full information in Bulletin 1140. Write for it.

Priced from $225.00

BUILD IT YOURSELF WITH BONDED CONVEYOR PARTS & ACCESSORIES

Ready Made Head, Tail and Intermediate Conveyor Sections. All types of Idlers, Return Rolls, Belting, Reducers, Accessories and Motors in Stock so you can Build Your Own Conveyor. All Bonded Troughing Idler Conveyors (described in this ad) can be equipped with any accessory described below or use them on your present conveyor or Bucket Elevator. Write for Bulletin #1138.

Return Belt Guide Idler $11.75

Carry Belt Guide Idler $14.50

Head & Tail $149.00

Self-Aligning Idler $40.75

Flat Roll Idler $13.50

Holdback $99.00

YOU ARE WELCOME TO Visit the Bonded Factory Any Time.

Wing Pulley $71.00

Screw Takeup and Frame $36.25

Rubber Disc Impact Idler $61.00

1 H.P. Speed Reducer $39.50

More than 5,000 Mines & Quarries Have Modernized with Bonded Equipment

BONDED SCALE AND MACHINE COMPANY

PHONE: Hickory 4-2186, Days — **WRITE FOR FREE CATALOG & PRICES** — **PHONE: AX. 1-2213, Evenings**

128 BELLVIEW — ***Mfgrs. of Scales, Conveyors, Conveyor Parts, Idlers, Vibrating Screens, Crushers and Feeders*** — **COLUMBUS 7, OHIO**

SHOVELS — DRAGLINES
DRILLS
CRANES — EUCLIDS

9-W Bucyrus Erie Drag, 165', 10 yd.
625 Page Diesel Drag, 160', 10 yd.
6160 Bucyrus Monighan Elec. Drag, 160', 8yd.
621-S Page Diesel Drag, 125', 7½ yd.
200-W Bucyrus Monighan Drag, 125', 6 yd.
2400 Lima Drag, 110', 6 yd.
7200 Marion Diesel Drag, 135'
120-B Bucyrus Erie Elec. Drag, 115', 5 yd.
5-W Bucyrus Erie Drag, 120', 5 yd.
4500 Manitowoc Drag, 120', 5 yd.
1055 P&H Drag, 90', 3½ & 4 yd.
1201 Lima Drag, 85', 3 yd.
54-B Bucyrus Erie Comb. Crane & Drag
802 Lima Cranes
3500 Manitowoc 60 ton Crane
3500 Manitowoc Drag, 80', 2½ yd.
955 P&H Drag, 90', 2½ yd.
903 Osgood Drag, 70', 2 yd.
5480 Marion Elec. 15 yd. Shovel
170-B Bucyrus Erie Elec. 6½ yd. Shovel
1600 P&H 6 yard Shovel
2400 Lima Standard 6 yard Shovel
120-B Bucyrus Erie Elec. 4½ yd. Shovel
4500 Manitowoc 4 yd. H. L. Shovel
1201 Lima Standard 3½ yd. Shovel
1201 Lima 2½ yd. H. L. Shovel
3500 Manitowoc 2 yd. H. L. Shovel
3000-B Manitowoc 2 yd. Shovel
820 Lorain 2 yard Shovel
803 Lima 1¾ yd. H. L. Shovel
Unit 1020 ¾ yd. Shovel—1 Yr. Old
600 Reich Heavy Truck Mounted Rotary Air Drills (Both Lever Arm and High Mast)
Davey Rotary Truck Mounted Air Drills
Meyhew Rotary Truck Mounted Air Drills
58-BH Joy Champion Rotary Air Drills
42-T, 29-T and 27-T Well Drills
Portadrill Truck Mounted Air Drill
Euclid Trucks—27FD, 18FD, 8TD, 36FD, 82FD, 13TD, 14TD, 63TD—Bottom & Rear Dumps.

FRANK SWABB EQUIPMENT CO., INC.

313 Hazleton Nat'l. Bank Bldg.
Hazleton, Pa. GLadstone 5-3658

SPECIALS

Hardinge ball mill 8'x36" 100 HP AC motor complete, spare new liners available
Hardinge ball mill 8'x48" 200 HP AC motor Falk reduction gear; 15 tons balls
F. S. Smidth tube mill 6'6"x21' Silex brick lined, 350 HP 180 RPM syn. motor 17 tons Nikard steel balls, new discharge head
Pennsylvania BXT-13 hammermill 250 HP 900 RPM syn. motor, extra new shaft, discs, many spare parts. Motor rewound; prac. new condition
2 W. S. Tyler-Hummer screens 4'x10' two deck
Jeffrey vibrating feeders 2 12"x30" 2 18"x30"
Inclined skip hoist 95' centers, 70' high, bucket 120 cu. ft. 40 HP elec. AC motor
Two bucket elevators 58' high 14"x8"x8½" buckets
Inclined bucket stone elevator 126' long 14"x8"x8½" buckets; 24"x76½" steel housing.
3 Williams Mdl. 278 hammermills, V-belt drive.

SHOVELS—CRANES—DRAGLINES

Northwest 6, 1⅛ yd., dragline-crane, 98' boom.
B-E 22B ⅝ yd. Shovel-Crane-Backhoe-Drag.
Northwest 80-D Diesel Shovel 2½ yd. New 1952.
Lorain L-820 2-yd. Shovel-Drag-Crane 100' bm.
Buc-Erie 84-B Diesel Shovel, 2½ yd.
Lorain Model MC 254W truckcrane 22 tons cap.
Bay City 190T61 truck crane 25 tons. Diesel.
Link-Belt HC90 truck crane 25 tons 90' alloy boom.

CRUSHERS—KILNS—DRYERS

JAW: Acme 10x20, 14x26, 14x36, 10x42, 16x32, 18x32, 25x40. Eagle 20x36. Diamond 24x36". Cedar Rapids 10x30, 20x36, 25x40. Farrell 10x20, 18x30, 14x36, 18x36, 36x48. Buchanan Type C 36x42. Acme 18x32. Traylor 18x36, 24x36. Allis-Chalmers 30x18. Good Roads 10x30. Telsmith 18x32. Traylor 42x48. Allis-Chalmers 42x40.
GYRATORY: Al-Chal 322, 6', 7⅛", 8, 9, 9K, 10, 36 and 50 Telsmith 8B, 28" Intercone,; Kennedy Van Saun 7, 19, 25½-8, 37½, 38; Traylor TY 1'6", 4' Type TS, TY 3'.
ROLL: Cedar Rapids 40x20. Pioneer 40x22. Pioneer 30x18. Telsmith 24x16. Universal 40x24 double.
HAMMERMILL: Jeffrey Type BB 24x20, Type B 36x24, 36x36, 36x42, Eagle 24x24, Stedman 24x20, Cedar Rapids 50-50, 50x33. Penn Model HXR 100
BALL MILL: K.V.S. Type M 6'x8' Airswept, Marcy No. 64¼, Hardinge conical 10'x40", 10'x36", 6'x22', 6'x12', 5'x7', A-C 6'x16'.
TUBE MILLS: 5'x18', 5'x20', 5'x22', 6'x12'.
ROD MILL: Jackson & Church 4'x10' 10 ton rods, new. Marcy 3x8, 5x12, 6x12, Ruth 4'x11'.
AUTOCLAVES: Jackson & Church bolted head 50'x6' "Quick Acting" head 50'x6'6".
CONE: Symons 2' and 3' coarse bowl.
KILNS: 4'x42', 5'x30', 6'x50'6", 6'6"x48', 7'x110', (6'6"x105', 8'x10', 6'x90'.
DRYERS: Louisville 6'x30', 6'x50', others 4'6"x40', 7'x80', 6'x30' complete with motor. NEW.
COMPEB MILLS: A-C 7'x24' with motor drive.

CRUSHING PLANTS

Cedar-Rapids AA-2225 primary port. Diesel.
Cedar-Rapids 3033 hammermill Diesel. Trailer mtd.
Eagle washing plant, classifier sand screws, screen.
Pioneer 150 Primary 2086 Cat D8800 Diesel.
Pioneer Secondary 4022 roll Cat. D 13000.
Cedar-Rapids Pitmaster Portable.
Cedar Rapids 40x33 Port. Secondary, Diesel.
Aus-Wesel. 2540 Port. Primary.
Pioneer Port. 11x36 jaw, 40x30 rolls.
Pioneer 24V Gravel Plant.
Amer. Good Roads 15x30, Diesel. Complete.
Universal 20x36 jaw, 30"x18" roll, plant complete.

CONCRETE PLANTS AND EQUIPMENT

Blaw-Knox 4180 3 compt. aggr. 1 cement 4000 bbls.
Erie Strayer port. concrete mix plant 25 yds. per hr.
Blaw-Knox 100 tons 3 compt. aggr. 400 Bbl cement.
Butler 600 bbl cement bin. All equipment.
Noble CA-245, complete plant, almost new.
Johnson 125 yd. 4 compt. 150 bbls cement, 750 bbls silo U.S. Corps Engrs. automatic.
Johnson 200 ton automatic 3 compt. aggr. with Heltzel 400 bbl. cement 797 cement silo.
Johnson Roadbuilder 50 yd 2 compt. aggr. 1 cement
Blaw-Knox & Johnson cement silos, 225, 473, 547 bbls.
Mixermobile 2 yd. 45' tower. Extension to 155'.
Fuller Fluxo Model 285 cement pump.

SAND AND GRAVEL HYDRAULIC DREDGES

Morris 16" x 14". Portable. Electric.
10" Portable Diesel powered. Complete.
12" Diesel powered, pontoon mounted. Complete.
Elliott 8" with cutter. Diesel Hull 48'x18'x3'6".
8" Hydraulic Diesel. On 32'x8' steel pontoons.
Amsco 10" Diesel power portable. Excellent.
6" portable Diesel complete with cutters, etc.
8" H-P twin Diesel drive. Complete.

SCREENS

Tyler F-360 4'x12' 2 deck w/spray bars.
Tyler Hummer 4'x10' double deck.
Trommel 6'x45' 75 H.P. elec. motor.
Telsmith 84"x12' Super Scrubber 75 H.P. motor.
Tyler-Niagara 3 deck 7½ H.P. A.C. motor.
New Holland 4'x12' 4 deck.
Telsmith 5'x12' dbl. deck elec. motor.

RICHARD P. WALSH CO.

30 Church St. New York, N. Y.
Cortland 7-0723 Cable: RICHWALSH

QUARRY EQUIPMENT

Cedarapids 4033 hammermill secondary unit. Rebuilt.
Cedarapids 1036-2416 Junior tandem on rubber. Rebuilt.
Cedarapids single pass plant with 1024 jaw on rubber.
Cedarapids BBB 1036 Scalping unit with 4'x10' screen on rubber.
30"x82' Belt Conveyor with 15 H.P. wrapdrive lattice frame.
36" x 4'6" Apron Feeder with disconnect clutch driven sprocket.
Williams 20" x 33" pulverizer.
12" x 35' inclined open elevator. New.
Seco 3' x 10' triple deck vibrating screen. Reconditioned.
27½ ton, single-compartment, 8' x 12' bin.
60-ton, two-compartment, 8' x 18' storage bin with clam gates.
100-ton, two-compartment, 13' x 23' bin.
Special bins to your specifications.
Conveyors—18"—24"—36". Also conveyor belting.
18" diameter x 20" face magnetic pulley.

SHOVELS AND CRANES

Lorain 820 2-yard diesel shovel-crane-drag. Reconditioned.
Lorain 70A shovel, 1¼ yd. Very good condition.
Lorain L50K 1-yard diesel crane. Excellent.
P & H 255A, ¾-yard diesel shovel, International diesel.
Lima 34 Paymaster ¾-yard diesel shovel. Good condition.
Lorain Byers 83 ¾-yard diesel powered backhoe.
Lorain Byers 83 ¾-yard gasoline powered clamcrane.
Lorain Byers 83 ¾-yard gasoline powered clamshell.
Buckeye 70 ¾-yard crawler clam, gas power.
Buckeye 70 ¾-yard gasoline powered shovelcrane.
Bucyrus-Erie 10B ⅜-yard shovel, hoe, crane.
Link Belt LS-50 backhoe, gas power.
Lorain MC-504-W moto-crane and clamshell. Very satisfactory condition.
Lorain MC-414 Moto Crane. Reconditioned.
American 375BT truck crane.

TRACTORS, TRUCKS, SCRAPERS, ETC.

1—Euclid 18-yard twin engine scraper. Very good condition.
1—Euclid 15.5-yard scraper. Excellent condition.
1—Euclid 12-yard scraper. Excellent condition.
6—Euclid 13-yard bottom dumps.
2—Euclid tractors with 3200 gallon water tank semi-trailer.
1—Euclid Model 3BV loader.
3—Caterpillar DW-10 scrapers. Reconditioned.
1—Caterpillar DW-10 with Athey side dump.
1—Caterpillar DW-15 scraper. Excellent.
1—Woodbridge 15-18 yard Model TCR scraper. Rebuilt.
1—Caterpillar D8 tractor with winch.
2—Allis Chalmers HD-10 tractors with hydraulic bulldozer blades.
1—International TD9 crawler tractor.
1—International TD18 with Bucyrus-Erie bulldozer blade. Excellent condition.

DIESEL POWER UNITS

Cat. D4600, 6- cylinder, 66 H.P. at 1200 RPM.
Cat. D7700, 74 H.P. at 1000 RPM. Rebuilt.
2—Cat. D13000, 145 H.P. at 1000 RPM. Rebuilt.
GMC 671, 6-cylinder, rebuilt.
GMC 671, Twin Diesel, rebuilt.
GMC 302IC, 3-cylinder, new.
GMC 371RC 38A, 3-cylinder. Rebuilt.
International UD18A, 6-cylinder. Reconditioned.

ASPHALT PLANT

Barber-Greene 848 Model with drier, graduation unit, etc.

AIR COMPRESSORS

105 cu. ft. Ingersoll-Rand gas portable.
142 cu. ft. Gardner-Denver two-stage stationary.
160 cu. ft. Ingersoll-Rand gas portable.
500 cu. ft. Ingersoll-Rand, Waukesha. Reconditioned.
420 cu. ft. Gardner-Denver two-stage stationary. Rebuilt.
312 cu. ft. Ingersoll-Rand stationary, electric.

L. B. SMITH, INC., Camp Hill, Pa.

Phone Harrisburg REgent 7-3431

ROTARY DRYERS & KILNS: 4'6" x 40'; 4'6" x 32'; 3'6" x 25'; 3' x 24'.
ROTARY COOLERS: 104" x 30'; 104" x 70'.
BALL MILLS: 6'x22" conical; 5'x22' unused, 6'x16', 5'x9', 6'x5'.
MINE HOISTS: 24"-36" dia. x 18"-24" wide, Single & Double Reduction.
AIR COMPRESSORS: 75 HP—280 HP, 880 CFM to 2230 CFM.
JAW CRUSHER: 8" x 10".

WE WILL PAY CASH FOR GOOD USED EQUIPMENT

PERRY EQUIPMENT CORP.

1418 N. 6th St. Philadelphia 22, Pa.
STevenson 4-7210

FOR SALE

CLASSIFIER Dorr 26 ft. bowl with rakes 5 to 10 TPH capacity

HAMMERMILL 42 x 24 Jeffrey "B" with 24" x 18' apron feeder and automatic feed controller

PAN CONVEYORS 36"x54' with 7" sides 30"x33' with std. sides

GRIZZLY ROLLS Six rollers 12" x 36" with side frames, sprockets, and chains.

G. & W. H. CORSON, INC.

Plymouth Meeting, Pa.

1—15" x 20" Reliance Jaw Crusher.
1—12" x 28" Climax Jaw Crusher.
3—10" x 20" Champion Jaw Crushers.
1—7" x 13" Champion Jaw Crusher.
1—6" x 15" Sturtevant Jaw Crusher.
1—10" x 20" Allis-Chalmers Blake Type Crusher.
1—16" x 10 Sturtevant Balanced Type Rolls.
1—New Holland 20B Hammermill.
1—#19 Kennedy Gyratory Crusher.
1—36" x 12' Rotary Screen with Scrubber.
1—New Link-Belt 3' x 5' Shakeout Screen.
13—New Link-Belt Reducers 6—25 H.P.

JOHNSON & HOEHLER, INC.

P.O. Box 102 Lansdowne, Pa.

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LOW COST—DEPENDABLE
INDUSTRIAL RUBBER PRODUCTS

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FOR ALL YOUR REQUIREMENTS OF

RUBBER HOSE

Air	Solvent	Discharge	Oil Suction	Suction	Vacuum
Acid	Welding	Fire	& Discharge	Water	Pneumatic
Paint Spray	Pile Driver	Fuel Oil	Gasoline	Steam	Road Builders

RUBBER BELTING

Conveyor	Grader	Hot Material	V-Belts
Elevator	Chute Lining	Mucker	Transmission

PROMPT SHIPMENTS LOW COST QUALITY PRODUCTS

CARLYLE RUBBER CO., INC.
103-107 Warren St., New York 7, N. Y. Digby9-3810

Draglines: Monighan 8 yd., 160 ft. boom, diesel powered. Monighan 5 yd., 120 ft. boom. Monighan 2-W, 85 ft. boom, diesel powered. Page 625, diesel, 150 ft. boom, 10 yd. bucket.

Cranes: P&H 20 ton, 80 ft. boom, 30 ft. jib, steel erector's truck crane. Lorain model TL20 Moto Crane with ½ yd. shovel, backhoe, crane boom and clam shell bucket. P&H model 855 diesel crane, 2 yd. capacity, with 80 ft. boom, dragline bucket and clam shell bucket. Built 1948, excellent condition.

Shovels: Marion 4161, 5 yd. capacity, electric, with or without dragline equipment. Also, one 5 yd. with diesel electric power. One Bucyrus Erie 54-B and one Northwest 80-D, both diesel powered.

Compressors: Fuller Rotary 350 H.P., 440 volt, 1850 CFM @ 100 lbs. Ingersoll Rand PRE2, size 22 x 24 & 20½ x 24 with synchron motor, 150 RPH. Chicago Pneumatic OCE, 26 x 15 x 18 with 400 H.P. synchronous motor, 2200 volt, 200 RPM.

Belt Conveyors: One 60" x 170 ft., one 60" x 300 ft., complete with all mechanical parts, belt, supporting structures, motors and drive.

Pan Conveyor: 48" x 110' complete with motor, reducer, etc., heavy duty type, designed for rock.

Scalping Screens: Heavy duty Robins 60" x 14 ft., 6" openings, 20 HP, 220/440 volt. NEW condition.

Pulverizers. Allis Chalmers 6 x 15' Compeb Mill. Marcy 7' x 12' Rod Mill, open end, with motor and drive. Marcy 6'6" x 14'6" Rod Mill. Allis Chalmers 5' x 22' Ball Mill. Hardinge 5' x 36" and 5' x 48" Ball Mills.

Dryers & Kilns: Rotary Kiln 10'8" x 104 ft., ⅝" welded plate, excellent condition. 2—Heavy duty 9' x 70 ft. Dryers with all equipment, NEW condition.

Jaw Crushers: 10" x 20", 15" x 36", 18" x 30", 24" x 36", 30" x 42", 40" x 42", with or without motors.

Mine Hoists: Double clutched drums 84" dia., 50" face, 1⅛" rope, 1200 FPM, post brakes, all safety features. Other hoists, single and double drum 100 to 2500 H.P. with all electrical equipment. Complete specifications, drawings, photos available.

Generator: General Motors 1000 KW diesel plant, 2300 volt, 3 phase, 60 cycle, with all auxiliary equipment.

We Buy And Sell Equipment Throughout North And Central America

A. J. O'NEILL
Lansdowne, Pa.
Phila. Phones: MAdison 3-8300—3-8301

FIFTEENTH ANNIVERSARY SALE

Seven Cranes and Shovels

Marion "321" ⅝ yd. Shovel or Crane.
P&H "255A" ⅝ yd. Diesel Shovel.
Insley "K-12" ½ yd. Trench Hoes or Draglines (3).
Lorain "TL-20" ½ yd. Dragline or Trench Hoe. Reconditioned.
Unit "514" ½ yd. Trench Hoe, fair condition.
Link-Belt Shovel Attachment complete, for LS-85 (⅝ yd.)

FIVE TRANSIT MIXERS

Jaeger 8 yd. (4½ yd. Agitator) Hi-Discharge, 1945-1947 Models, one mounted on 6-Wheeler, one unmounted.
Smith 8 yd. (4¼ yd. Agitator) Hi-Discharge, un-mounted.
Rex 3 yd. (4¼ yd. Agitator) Hi-Discharge, mounted F-8 Ford Tandem.
Rex 3 yd. (4¼ yd. Agitator) Hi-Discharge, mounted I-H "LF174" Tandem.

SIX END LOADERS

Caterpillar "D-6" Diesel Tractor, Traxcavator Loader, Cab, 1950 model—excellent.
Caterpillar "D-6" Diesel Tractor w/Traxcavator. Needs some track repairs.
Cletrac "DGH" Used Gas Crawler w/Drott Hi-Lift 1½ yd. Front End Loader. Needs some track work. Make Offer.
Hough "HM" 1½ yd. Four-Wheel Drive Payloader, Reconditioned.
Pettibone "15" 1½ yd. Four Wheel Drive Tractor Shovel.
Pettibone "175D" Demonstrator 1¾ yd. (Struck) Tractor Shovel, 4-wheel drive, power shift transmission, planetary axels. New Guarantee.

MISCELLANEOUS

Barber-Greene "522W" Bucket Loader, rubber-tired, reduced to sell.
Adams "411" Diesel Motor Grader, Cab and Scarifier.
Barber-Greene "705" RT Runabout Ditcher, digs 4½ ft. deep.
Chicago-Pneumatic "60" Reconditioned Portable Compressor. We have 3 of these from $800. to $1250.
Universal "2036" R.B. Jaw Crusher, Skid-mounted, w/Apron Feeder.
Bayport 23 yd. New Aggregate Bins.
Caterpillar "D318" Diesel Electric Generator Set, 40 KW.
Caterpillar "D13000" Diesel Power Unit.
Jahn 15-Ton Low Boy Semi-Trailer, flat deck, Vacuum Brakes.
NOTE: All This Equipment Located in our Yard.

EIGHMY EQUIPMENT CO.
120 S. PIERPONT, ROCKFORD, ILL.
Phone 4-6706

WANTED

Good used 18" & 24" trough idlers, any amount.
Jaw Crushers, all sizes.
Gearmotors 3 to 15 H.P.
Late Model Vibrating Screens.

FOR SALE

Telsmith Sand Rewasher 28" x 12'.
Transmission Belts, all sizes.
Small Gasoline Water Pumps.
Rotary Vane Feeder Valves.
Westinghouse Flexarc Portable gas driven Welder on Pneumatics.
10" Enclosed Elevator, Belt.
8" Enclosed Bucket Elevator.
6" Enclosed Bucket Elevators (2).
SACO Speed Reducers, 4 to 60 HP (9).
Parallel Shaft Reducers, 25-150 HP (11).
Pennsylvania Hammermills, SXT-14, with 450 H.P. GE Motors (2 available).
Pioneer 15x36" Jaw, Bronze Bearing.
Dodge Lever Type Jaw Crusher 9" x 15".
Climax Jaw Crusher 10" x 20", new Jaws.
Champion Jaw Crusher 12" x 26".
Acme Jaw Crusher 14" x 26".
Acme Jaw Crusher 10" x 18".
Pebble Mills, 5' and 6' (5 available).
S-A Hammermill, Knittel Type.
Wright 8 Ton Chain Hoist.
Niagara 18" x 72" S. D. Screen.
Easton Dump Cars 24" ga. 1½ yd. (4).
15 Ton Stiffleg Derrick, 110' Boom.
Screw Conveyor & Parts, 6" to 16".
Misc. Size Large Conveyor Pulleys.
Permanent Magnetic Pulley, 24" x 26".
New 42" Belt, 351 feet.
New Idlers, 18" and 24".
Trough Idlers, antifriction, 48" & 42", 36" Trough Idlers, 5 roll type (69).

G. A. UNVERZAGT & SONS INC.
136 Coit St. Irvington 11, N. J.

2-CEDARAPIDS 2-Unit Portable Crushing Plants, w/18x24 r.b. Jaw, feeder, vib. grizzly, undercrusher conveyor, power unit. Secondary w/16x24 r.b. Double Roll, 3x8 vibr. screen, rotovator, power. Both units factory mounted pneumatic tires for highway travel. Good. Bargain. $14,000 Rent $750/mo. apply purchase price. Ill.
CEDARAPIDS 25x40 r.b. Jaw Crusher Portable Primary, mdl. AAAA, w/apron feeder, conveyor, diesel power, on tandem rubber. Excellent. $21,000.
UNIVERSAL Secondary Portable Plant 18/30 r.b. Double Roll, #3 hammermill, rotovator, Simplicity 4 x 12 2-deck screen, diesel electric set, diesel power unit, mounted tandem rubber. 30" belts. Rebuilt. $17,500 Rental Purchase. Yard.
GRUENDLER 24x36 r.b. Jaw Crusher w/12' apron feeder & hopper. $7750.
UNIVERSAL 3M Jaw Crusher, 9x16. Good. $400 Yd.
ROGERS 10x18 Jaw Crusher. Like new. $600 Yard.
CEDARAPIDS 30x18 and 24x16 r.b. Double Roll Crushers. Factory guarantee. $4850 & $3750 Yd.
SCREENING PLANT, Portable w/Simplicity 5x12 2-deck screen, 15 HP motor, 30" 45' conveyor, on pneumatic tires. Good. $3850.
DIAMOND 3x6 Single Deck Vibr. Screen, like new. $500 Yard.
SIMPLICITY 4x10 3-deck Vibr. Screen, excellent $1950 Yard.
SIMPLICITY 3x8 2-deck Vibr. Screen, new shaft & bearings. $850 Yard.
SIMPLICITY 5x12 2-deck Vibr. Screen.
PORTABLE Conveyor, 20"x36' w/2 cy. engine & new belting, on rubber. A1. $1400 Yard.
CONVEYOR, 18"x125' w/belting, 10 HP. motor & gear reducer. Good. $1850 Yard.
LIMA 1201 Shovel Front, like new. $3500.
BUCYRUS ERIE 37B Shovel Front, like new. $2000 Yard.
GARDNER DENVER D99DT Wagon Drill w/air motor hoist. Good. $1250 Yard.
INGERSOL RAND 315 cfm Portable Diesel Air Compressor, w/UD18 engine. Excellent. Rent $250/mo. apply purchase price $3000 Yd.

WENZEL MACHINERY CO.
563 S. 10th Kansas City, Kans.
Mayfield 1710

ALSO SEE READY-MIXED CONCRETE AND CONCRETE PRODUCTS EQUIPMENT WHERE TO BUY ADVERTISING IN CONCRETE PRODUCTS SECTION

KILNS—COOLERS—DRYERS

705-20 Link-Belt Roto Louvre, SS.
502-16 Link-Belt Roto Louvre.
6' x 60' Rotary Dryer.
5' x 10 Hearth Furnace.
5' x 30' x ¼" welded.

PULVERIZERS—MILLS—CRUSHERS

8" x 15" Pacific Jaw Crusher.
18" x 18" Jeffrey 1-roll spiked.
14" x 16" B.&S. 2-roll spiked.
Raymond #1 Pulverizer.
4' Standard Symons.
6'6" x 21' Schmidt Tube Mill.
8' x 36" Hardinge Conical Mill.
20" x 12" Jeffrey Hammer Style A, NEW.
15" x 8" Jeffrey Hammer Style B, NEW.

BUCKET ELEVATORS

50' c/c 14x8 buckets, steel case.
52' c/c 8x5 buckets, complete.
32' c/c 6x4 buckets on 7" belt.
26' c/c 8x6 buckets, steel case.

SCREENS

Rotex #21, 40" x 84".
Robinson Gyro Sifter 28A.
Tyler 5x12, 3x10, Wet Type.
Universal Roads 18" Cent. Separator.

MISCELLANEOUS

628 CFM I.R. Compressor 14x13 100 HP.
150 HP Union Water Tube Boilers.
47' Screw Conveyor, 12" 2 HP motor.
12" Merrick Weightometers.
Rotoclone Collector, Type W, Size 36.

►SEND US YOUR INQUIRIES◄

HEAT & POWER CO., INC.

60 East 42nd St. New York 17, N.Y.
MURRAY HILL 7-5280
(Machinery & Equipment Merchants)

Diesel Power Plant For Sale By Owner

GENERATOR

1000 KW, 1250 KVA, .80 PF, 2300 Volt, 3 phase, 60 cycle, 720 RPM, General Electric, Serial 5640882.

DIESEL ENGINE

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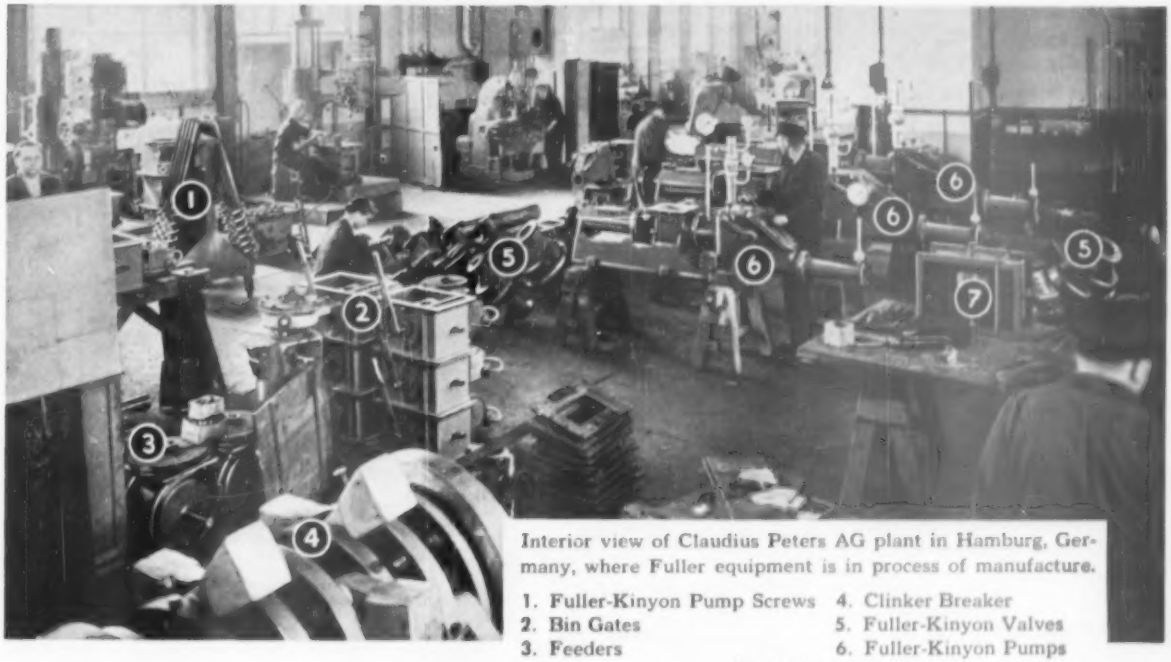

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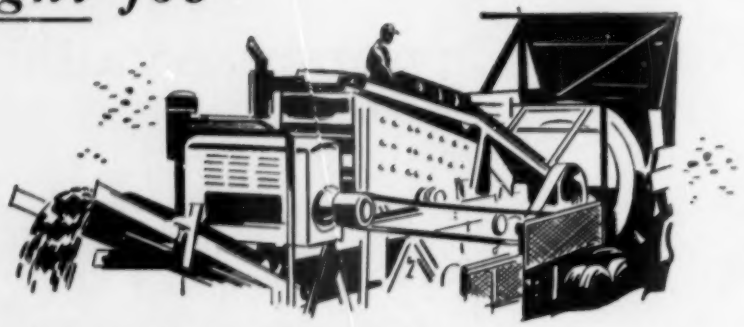

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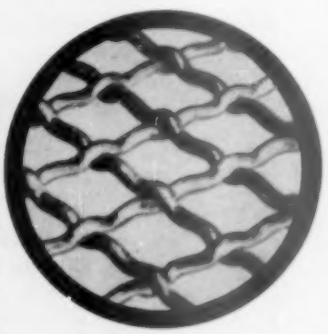

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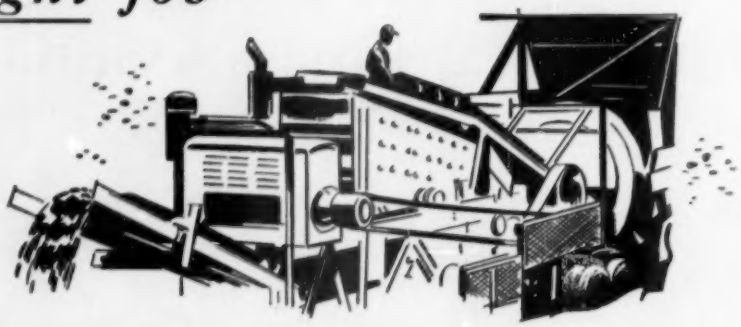
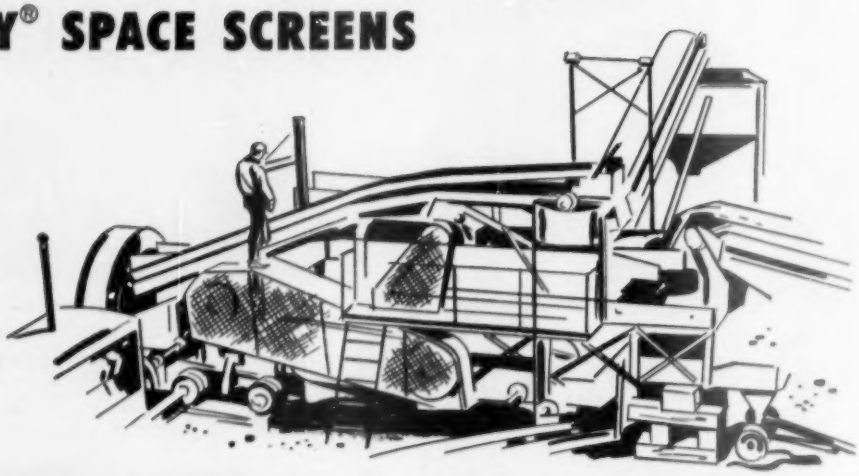
Need a screen with low initial cost?

Need a screen that gives long service on average jobs?



. . . choose

WISSCO-LOY® SPACE SCREENS



Need a screen with high abrasion resistance?

Need lowest cost-per-ton screening?

. . . choose

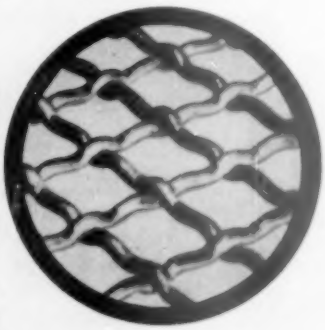
SUPER-TEMPERED PRECISION SPACE SCREENS

Do you try to match your screening requirements with exactly the right screen—the screen that gives you most for your dollar? Then we suggest that your CF&I representative can help you make that choice. He can offer you *two* top quality space screens—each possessing special advantages, depending upon the type of screening job.

Economically-priced Wissco-Loy Screens, made from alloy steel wire, are designed for jobs where toughness is required, but where abrasive conditions are moderate.

Super-Tempered Screens, made from oil-tempered wire, give long service on jobs where abrasion is expecially severe.

Both these CF&I Space Screens are available in a wide range of standard dimensions, wire sizes, openings and edge preparations—or you can specify any type to meet your own job requirements. For the complete story on Wissco-Loy and Super-Tempered Space Screens, contact your CF&I representative or write direct to Sales and Engineering, 56 Sterling Street, Clinton, Mass.



CF&I **SPACE SCREENS**

THE COLORADO FUEL AND IRON CORPORATION

4460

THE COLORADO FUEL AND IRON CORPORATION—Albuquerque • Amarillo • Billings • Boise • Butte • Casper • Denver • El Paso • Ft. Worth Houston • Lincoln (Neb.) • Los Angeles • Oakland • Oklahoma City • Phoenix • Portland • Pueblo • Salt Lake City • San Antonio San Francisco • Seattle • Spokane • Wichita

WICKWIRE SPENCER STEEL DIVISION—Atlanta • Boston • Buffalo • Chicago • Detroit • New Orleans • New York • Philadelphia

CF&I OFFICES IN CANADA: Montreal • Toronto • CANADIAN REPRESENTATIVES AT: Calgary • Edmonton • Vancouver • Winnipeg

Enter 1335 on Reader Card

ANOTHER DIFFICULT SCREENING JOB MADE EASY WITH SECO SCREENS

Photographed on-the-job Gowanda, New York

OPERATOR PRODUCES 50,000 T./YEAR OF FILTER BED SAND TO RIGID SPECIFICATION OF ERIE COUNTY, N.Y. HEALTH DEPT.

Pictured above is the main portion of the sand and gravel plant of Ray Vogtli & Sons, Inc. of Gowanda, N. Y. This company has been fortunate enough to have received, for the past three years, an annual contract for 50,000 tons per year of filter bed sand from the Erie County, N. Y. Health Department.

The Health Department has set rigid standards as to size, uniformity and removal of fines. Samples are checked periodically to make sure these standards are met.

This company's good fortune in having secured these important contracts has been due, in large measure, to the consistently accurate screening results they have obtained from their two SECO VIBRATING SCREENS. A 4 x 10 double-deck scalper separates the sand from coarse stone and a 3 x 10 triple-deck gives them their finished products.

To quote Mr. Lee Vogtli, head of Ray Vogtli & Sons, Inc.: "We have had SECO SCREENS since we opened our new plant 10 years ago, and have found them very dependable and trouble-free. You can rest assured, when we need additional screens, they'll be SECO'S too."

SEND FOR SECO CATALOG No. 204

SECO

TRUE CIRCULAR ACTION

VIBRATING SCREENS

REMEMBER . . . SECO SHIPS PARTS THE SAME DAY ORDERED

Keep this plus service in mind when you're ordering screens for your plant. When spare parts are needed, you'll have them ready for installation with a minimum loss of production time. This is one of the many reasons why more and more operators from coast to coast are turning to SECO to make their operations more efficient, more profitable.

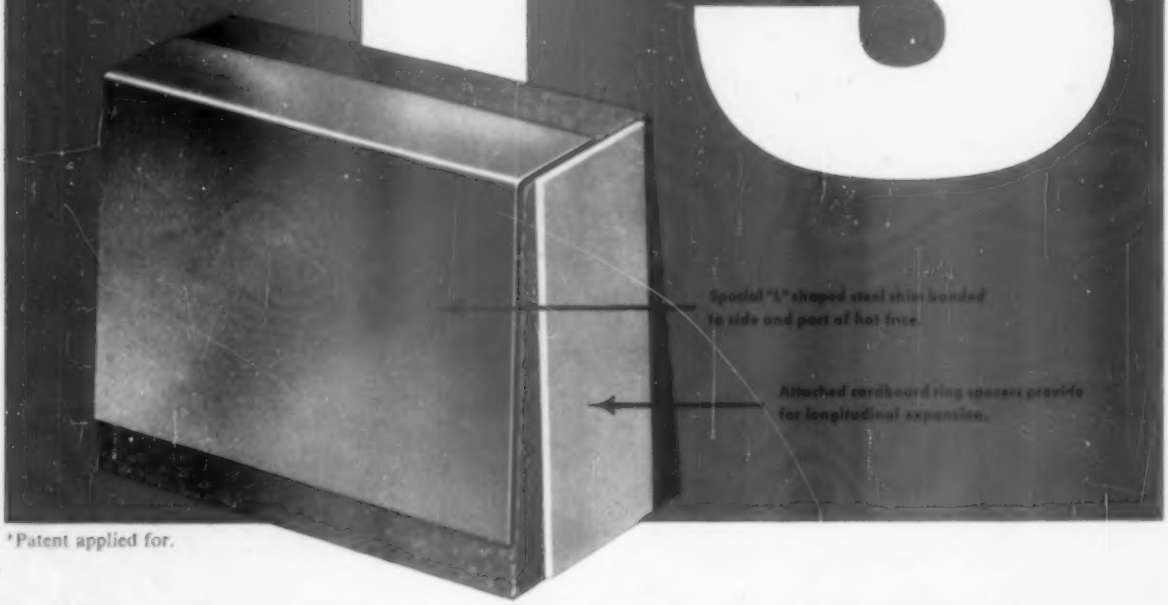
SCREEN EQUIPMENT CO., INC.

Buffalo 25, N. Y.

Enter 1316 on Reader Card

*New Kaiser Unitized Kiln Liner**

T3


Special "L" shaped steel shim bonded to side and part of hot face
Attached cardboard ring spacers provide for longitudinal expansion.

*Patent applied for.

Saves up to Half the Production Usually Lost in Kiln Down-Time!

Now you can eliminate the costly process of inserting steel plates and cardboard spacers between bricks while lining your cement kiln—*and let the time saved earn profits in extra production.* Already operators have reported 30 to 50% savings in installation time!

The unique Kaiser Chemicals development that makes this possible is the bonding of accessories to Kaiser Periclase-Chrome Brick. And in addition to increasing production by drastically decreasing installation time, you get these extra benefits:

• Assures Correct Installation—When installing Kaiser T3 Unitized Kiln Liners, shims are automatically aligned between all bricks. And because part of the shim overlaps the hot face, it is easy to see by visual inspection that all bricks are placed correctly, hot face inside.

• Takes the Guesswork Out of Expansion Allowances—The thickness of the adhesive that bonds the steel shims to the brick automatically provides the correct allowance for circumferential expansion. The bonded cardboard spacers give added protection by assuring correct provision for longitudinal expansion. No additional spacers are needed.

• Coats Faster—When the kiln is fired up the overlapping part of the shim melts, oxidizes, and combines with the feed to speed formation of hot zone coating.

• Reduces Inventory Problems—Because the shims and cardboard spacers are bonded to the brick *at the factory*, you need no separate orders or stock records for them. And, in turn, your materials handling costs are reduced.

Let us show you how this new Kaiser Chemicals development can help you reduce kiln down-time *and* give you longer liner life. Contact your Kaiser Chemicals sales engineer now.

Kaiser Unitized Kiln Liners are available in all sizes of the standard 9" x 6" x 3½" Series Arch Brick and Wedge Brick. Write or call for descriptive folder.

Kaiser Chemicals

Pioneers in Modern Basic Refractories

Refractory Brick & Ramming Materials • Castables & Mortars • Magnesite • Periclase • Deadburned Dolomite

To get more information call our nearest Sales Office: Kaiser Chemicals Division, 1924 Broadway, OAKLAND 12, California . . . 3 Gateway Center, PITTSBURGH 22, Pa. . . . 518 Calumet Bldg., HAMMOND, Indiana.

To obtain free copies of Kaiser Chemicals Product literature write Kaiser Chemicals Division, Kaiser Aluminum & Chemical Sales, Inc., 1924 Broadway, OAKLAND 12, Calif., Dept. C 6541.

See "THE KAISER ALUMINUM HOUR." Alternate Tuesdays, NBC Network. Consult your local TV listing.

Enter 1596 on Reader Card